DOCUMENT RESUME

ED 416 246 TM 028 126

AUTHOR	Barro, Stephen M.
TITLE	International Education Expenditure Comparability Study: Final Report, Volume I. Working Papers Series.
INSTITUTION	SMB Economic Research, Inc., Washington, DC.; Pelavin Research Inst., Washington, DC.
SPONS AGENCY	National Center for Education Statistics (ED), Washington, DC.
REPORT NO	NCES-WP-97-16
PUB DATE	1997-05-00
NOTE	562p.; For Volume II, see TM 028 127.
AVAILABLE FROM	U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics, 555 New Jersey Avenue, N.W., Room 400, Washington, DC 20208-5654.
PUB TYPE	Numerical/Quantitative Data (110) -- Reports - Evaluative (142)
EDRS PRICE	MF02/PC23 Plus Postage.
DESCRIPTORS	*Comparative Analysis; Costs; *Educational Finance; Educational Research; Elementary Secondary Education; *Expenditures; Foreign Countries; Higher Education; International Education; *International Studies; Private Schools; Public Schools; *Research Methodology; Tables (Data)

ABSTRACT

This is Volume I of the final report of the Study of International Comparability of Statistics on Education Expenditures, undertaken to assess the validity of international comparisons based on expenditure statistics compiled by the Organization for Economic Cooperation and Development and the United Nations Educational, Social, and Cultural Organization. The implications of deviations from comparability were studied, and the prospects and options for making international expenditure statistics more comparable in the future were considered. This, the main volume, examines the nature, prevalence, severity, and causes of problems in comparing education expenditures across countries, and it assesses progress to date in correcting these problems and options for further improvement. The second volume offers a quantitative analysis of the combined effects of multiple comparability problems on international comparisons of selected expenditure statistics and indicators. An executive summary presents findings of both volumes. The following sections are included in Volume I: (1) "Introduction and Background"; (2) "Overview of Comparability Problems"; (3) "Defining the Boundaries of Education"; (4) "Classification of Expenditures by Level of Education"; (5) "The Public and Private Dimensions of Education Expenditures"; (6) "Expenditures for Particular Functions, Services, and Cost Categories"; (7) "Special Issues Concerning Expenditures for Tertiary Education"; (8) "Statistics on Uses of Education Funds (Expenditures by Nature and Resource Category"; (9) "Education Expenditures by Source of Funds"; (10) "Enrollment Statistics and Expenditures per Student"; (11) "General Findings, Conclusions, and Implications." Three annexes present the study questionnaire and finance data collection tables. (Contains 6 tables and 32 references.) (SLD)

ED 416 246

TM028126

NATIONAL CENTER FOR EDUCATION STATISTICS

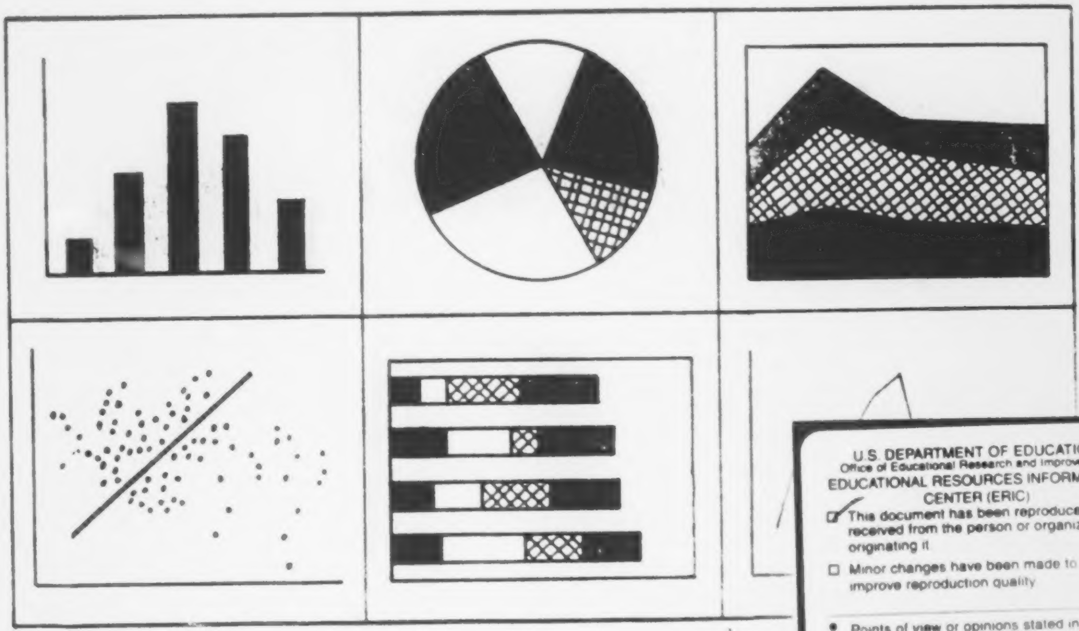
Working Paper Series

International Education Expenditure Comparability Study: Final Report

Volume I

Working Paper No. 97-16

May 1997



U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

U.S. Department of Education
Office of Educational Research and Improvement

BEST COPY AVAILABLE

International Education Expenditure Comparability Study: Final Report

Volume I

Working Paper No. 97-16 May 1997

Contact: Shelley Burns
Data Development and Longitudinal Studies Group
(202) 219-1463
e-mail: shelley_burns@ed.gov

U.S. Department of Education
Richard W. Riley
Secretary

Office of Educational Research and Improvement
Ramon C. Cortines
Acting Assistant Secretary

National Center for Education Statistics
Pascal D. Forgione, Jr.
Commissioner

Data Development and Longitudinal Studies Group
Mary J. Frase
Acting Associate Commissioner

The National Center for Education Statistics (NCES) is the primary federal entity for collecting, analyzing, and reporting data related to education in the United States and other nations. It fulfills a congressional mandate to collect, collate, analyze, and report full and complete statistics on the condition of education in the United States; conduct and publish reports and specialized analyses of the meaning and significance of such statistics; assist state and local education agencies in improving their statistical systems; and review and report on education activities in foreign countries.

NCES activities are designed to address high priority education data needs; provide consistent, reliable, complete, and accurate indicators of education status and trends; and report timely, useful, and high quality data to the U.S. Department of Education, the Congress, the states, other education policymakers, practitioners, data users, and the general public.

We strive to make our products available in a variety of formats and in language that is appropriate to a variety of audiences. You, as our customer, are the best judge of our success in communicating information effectively. If you have any comments or suggestions about this or any other NCES product or report, we would like to hear from you. Please direct your comments to:

National Center for Education Statistics
Office of Educational Research and Improvement
U.S. Department of Education
555 New Jersey Avenue, NW
Washington, DC 20208

Suggested Citation

U.S. Department of Education. National Center for Education Statistics. *International Education Expenditure Comparability Study: Final Report, Volume I*, Working Paper No. 97-16, by Stephen M. Barro. Project Officer, Shelley Burns. Washington, D.C.: 1997.

May 1997

Foreword

Each year a large number of written documents are generated by NCES staff and individuals commissioned by NCES which provide preliminary analyses of survey results and address technical, methodological, and evaluation issues. Even though they are not formally published, these documents reflect a tremendous amount of unique expertise, knowledge, and experience.

The ***Working Paper Series*** was created in order to preserve the information contained in these documents and to promote the sharing of valuable work experience and knowledge. However, these documents were prepared under different formats and did not undergo vigorous NCES publication review and editing prior to their inclusion in the series. Consequently, we encourage users of the series to consult the individual authors for citations.

To receive information about submitting manuscripts or obtaining copies of the series, please contact Ruth R. Harris at (202) 219-1831 or U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics, 555 New Jersey Ave., N.W., Room 400, Washington, D.C. 20208-5654.

Susan Ahmed
Chief Mathematical Statistician
Statistical Standards and
Services Group

Samuel S. Peng
Director
Methodology, Training, and
Service Program

International Education Expenditure Comparability Study:

Final Report

Volume I

Prepared by:

Stephen M. Barro
SMB Economic Research, Inc.

Prepared for:

U.S. Department of Education
Office of Educational Research and Development
National Center for Education Statistics

May 1997

This report has been prepared under contracts from the National Center for Education Statistics (NCES), U.S. Department of Education, through subcontracts to SMB Economic Research, Inc., from Pelavin Research Institute. The work was undertaken in collaboration with the Indicators of Education Systems (INES) project of the Organization for Economic Cooperation and Development (OECD). All views expressed are solely the author's and do not necessarily reflect the positions or policies of NCES or OECD.

PREFACE AND ACKNOWLEDGMENTS

This is the final report of the Study of the International Comparability of Statistics on Education Expenditures (hereafter, the Expenditure Comparability Study), sponsored by the U.S. National Center for Education Statistics (NCES). The study was conducted by SMB Economic Research, Inc. and the Pelavin Research Institute (formerly Pelavin Associates, Inc.). It was undertaken to assess (1) the validity of international comparisons based on expenditure statistics compiled by OECD[*] and UNESCO,[**] (2) the implications of deviations from comparability, and (3) prospects and options for making international expenditure statistics more comparable in the future. The work was carried out in close collaboration with the OECD Indicators of Education Systems (INES) project, an ongoing endeavor to develop sound, useful, and policy-relevant international comparisons of education.

The report consists of two volumes and an executive summary. This, the main volume, examines the nature, prevalence, severity, and causes of problems in comparing education expenditures across countries and assesses progress to date in correcting these problems and options and prospects for further improvement. A companion volume offers a quantitative analysis of the combined effects of multiple comparability problems on international comparisons of selected expenditure statistics and indicators. Each volume lays out the implications of its findings for policymakers and other users of international expenditure statistics. The executive summary presents the findings of both volumes.

The study was conducted under contracts from NCES to the Pelavin Research Institute and subcontracts from Pelavin to SMB Economic Research, Inc. Specifically, NCES contract

---

[*] OECD = Organization for Economic Cooperation and Development.

[**] UNESCO = United National Educational, Social, and Cultural Organization.

BEST COPY AVAILABLE

RN92001001 supported the work during the period June 1992 to June 1994, and NCES contract RN94004001 provided supplemental funding thereafter. In addition, SMB obtained partial financial support for case study work in the United Kingdom and Sweden through a related study for the Finance Center of the Consortium for Policy Research in Education (CPRE), a research center sponsored by the U.S. Department of Education's Office of Education Research and Improvement (OERI). SMB also obtained funding for a case study of Austria from a separate contract with the Austrian government.

Responsibilities for various aspects of the Expenditure Comparability Study were divided as follows: As principal investigator, Dr. Stephen M. Barro of SMB played the leading role in conceiving, designing, and carrying out the investigation. Dr. Joel D. Sherman administered the project on behalf of the Pelavin Research Institute and contributed to the research design and analysis efforts. Drs. Barro and Sherman each assumed responsibility for portions of the principal information-gathering activity of the study, a series of case studies of participating countries. Barro conducted the case studies of the United Kingdom, Sweden, the Netherlands, and Austria, with the assistance in each instance of Dr. Lana D. Muraskin, also of SMB. He also participated in the case study of France and supervised the work of a consultant, Prof. François Orivel (Université de Bourgogne), who collected most of the information for that country. Sherman conducted the case studies of Australia, Canada, and Spain. Barro and Sherman jointly carried out the case study of Germany.

This volume was written by Dr. Stephen M. Barro and is the product of SMB Economic Research, Inc., which is solely responsible for its content. However, it incorporates information obtained from all the case studies mentioned above and the results of certain analyses carried out at Pelavin Research Institute. In particular, portions of Chapters 3 and 6 and, to a lesser extent, Chapter 8 contain material from earlier drafts prepared by Dr. Sherman and his Pelavin colleagues.

The companion volume presenting the quantitative analysis was written by Dr. Joel D. Sherman and is the product of Pelavin Research Institute. However, it reflects certain analytical contributions by SMB. Specifically, Dr. Barro developed estimates of the effects of comparability problems on the expenditure statistics of Austria, France, the Netherlands, Sweden, and the United Kingdom and assisted in developing the estimates for Germany.

The study has benefitted from the involvement of several NCES staff members, who helped to shape the research design at the outset, reviewed progress along the way, and reviewed drafts of the report. The NCES staff members who participated at various points in the process include Jeanne D. Griffith, Paul D. Planchon, Eugene Owen, John H. Ralph, Dawn D. Nelson, Shelley S. Burns, Nabeel Alsalam, and Thomas D. Snyder.

A major debt is owed to Mr. Norberto Bottani, Director of the INES Project and Head of OECD's Unit on Education Statistics, who organized the fruitful collaboration between the Expenditure Comparability Study and the INES project and played an indispensable role in encouraging the individual countries to participate. Thanks are also due to Ms. Catherine Duchêne, of the INES Secretariat, for supplying INES data and providing advice on many technical aspects of the INES expenditure statistics.

The study depended on the cooperation of education officials, statisticians, and other experts in the participating countries. Some of these individuals invested substantial time and effort in the inquiry, participating in week-long series of meetings and responding to numerous and detailed technical questions. The following list names only the principal persons involved in each country:

Australia.	Michael Gallagher, Alan Auzins, Kevin Silberberg, and others at the Australian Department of Employment, Education, and Training (DEET) and the Australian Bureau of Statistics (ABS).
Austria.	Friedrich H. Plank, Bundesministerium für Unterricht und Kunst (BMUK); Peter Neudorfer, Bundesministerium für Wissenschaft und Forschung (BMWF); and Walter Stübler and Dr. Franz of the Austrian Central Statistical Office.
Canada.	Kathleen Campbell, Kenneth Bennett, Douglas Lynd, and others at Statistics Canada.
France.	Alain Michel and Michel Euriat of the Ministère de l'Éducation Nationale, and Prof. François Orivel, Université de Bourgogne.
Germany.	Ingo Russ and Dr. Elmar Freund, Bundesministerium für Bildung und Wissenschaft, and Walter Hörner and Heinz-Werner Hetmeier, of the Statistisches Bundesamt.
Netherlands.	Nicolaas J. Dersjant, Ruud Abeln, and many of their colleagues at the Ministerie van Onderwijs en Wetenschappen; Max van Herpen and colleagues at the Centraal Bureau voor de Statistiek.
Spain.	Mme. Isabel Muñoz, Eduardo de la Fuente, and their colleagues at the Ministerio de Educación y Ciencia and Instituto Nacional de Estadística.
Sweden.	Ms. Birgitta Andrén, Skolverket; Mr. Bertil Bucht, Ministry of Education and Science; and Per Nordling and his colleagues at Statistics Sweden.
United Kingdom.	Michael Davidson, Alison Kennedy, and their colleagues at the Department for Education.
United States.	Thomas Snyder and his colleagues at the U.S. National Center for Education Statistics.

Needless to say, none of the persons mentioned above shares responsibility for any of the interpretations offered or views expressed in this report.

CONTENTS

- Foreword iii
- Preface and Acknowledgments vii
- Summary xvii

- 1. INTRODUCTION AND BACKGROUND 1-1
  - Concerns About Comparability 1-2
  - Origins and Objectives of the Expenditure Comparability Study 1-5
  - Background: International Statistics and Indicators 1-9
    - The UOC Joint Questionnaire on Education Expenditures 1-10
    - UNESCO Expenditure Indicators 1-11
    - OECD's Pre-INES Expenditure Indicators 1-11
    - The INES Expenditure Statistics and Indicators 1-12
    - Subsequent Developments 1-13
    - The International Standard Classification of Education (ISCED) 1-14
  - Scope of the Inquiry 1-16
    - Expenditure Statistics 1-16
    - Countries 1-18
    - Substantive Issues 1-19
  - Design and Methodology 1-22
    - Information Gathering: The Country Case Studies 1-22
    - Analysis and Synthesis 1-26
    - Interaction with OECD's INES Project 1-28
  - Organization of the Report 1-29

- 2. OVERVIEW OF COMPARABILITY PROBLEMS 2-1
  - The Meaning and Relevance of Comparability 2-1
    - Basic Definitions 2-1
    - Comparability with Reference to Particular Countries 2-3
    - Relative and Absolute Comparability Standards 2-4
    - Comparability and Validity 2-7
    - Comparability and Accuracy 2-8
    - Comparability as a Matter of Degree 2-9
  - Types of Comparability Problems 2-11
    - Problems of Scope or Coverage 2-11
    - Problems of Categorization 2-15
    - Problems of Measurement and Estimation 2-16
  - Causes of Comparability Problems 2-18
    - Differences in Education and Education Finance Systems 2-19
    - Differences in National Statistical and Accounting Systems, Concepts, and Practices 2-21
    - The International Data Collection System and Process 2-26
    - Summary 2-31
  - Implications for Remedial Action 2-32

3. DEFINING THE BOUNDARIES OF EDUCATION . . . 3-1
  The Boundary Between Early Childhood Education and Child Care . . . 3-2
    Definitional Issues . . . 3-2
    Findings Concerning Individual Countries . . . 3-6
    General Findings and Implications for Comparability . . . 3-10
    Changes to Date and Options for Improvement . . . 3-12
  Apprenticeship: The Dual System . . . 3-14
    Issues of Definition and Measurement . . . 3-15
    Current Statistical Practices . . . 3-19
    Implications and Options for Improvement . . . 3-20
  Other Aspects of the Education/Training Boundary . . . 3-24
    Forms of Apprenticeship Other than the Dual System . . . 3-25
    Programs of Training in Alternation . . . 3-26
    Public and Private Labor Training Programs . . . 3-29
    Employer-Provided Training of Employees . . . 3-31
  Adult, Continuing, and "Out-of-School" Education . . . 3-33
    Differences in Definitions . . . 3-34
    Differences in Institutional Structures . . . 3-36
    Inconsistent International Definitions and Instructions . . . 3-38
    Findings Concerning Individual Countries . . . 3-40
    General Findings and Implications for Comparability . . . 3-49
    Changes to Date and Options for Improvement . . . 3-51

4. CLASSIFICATION OF EXPENDITURES BY LEVEL OF EDUCATION . . . 4-1
  The ISCED and UOC Classifications of Levels . . . 4-2
    Levels of Education According to ISCED . . . 4-3
    Levels of Education in the UOC Joint Questionnaire . . . 4-8
  Problems in Defining the Constituent Levels of Primary and Secondary Education . . . 4-11
    Differences in the Starting Age of Primary Education . . . 4-11
    Differences in the Duration of Primary and Secondary Education . . . 4-13
    Structural Variations, Non-Disaggregated Statistics, and Allocations of Expenditures . . . 4-17
    Assessment and Prospects for Improvement . . . 4-22
  The Boundary Between Secondary and Postsecondary Education . . . 4-26
    Sectors that Straddle the Secondary/Tertiary Boundary . . . 4-28
    Multiple Cycles of Upper-Secondary Education . . . 4-32
  Problems in Defining the Constituent Levels of Tertiary Education . . . 4-35
    Non-University versus University-Level Tertiary Education . . . 4-35
    Undergraduate versus Postgraduate University Education . . . 4-40
  Expenditures Not Allocated By Level . . . 4-42
    Definitional Problems . . . 4-43
    Reporting of Unallocated Expenditures by the Countries . . . 4-45
    Assessment and Options for Improvement . . . 4-49
  A Note on ISCED Revision . . . 4-53

5. THE PUBLIC AND PRIVATE DIMENSIONS OF EDUCATION EXPENDITURES 5-1
  Classification of Institutions and Funding Sources 5-3
    Public and Private Service Providers 5-3
    Public and Private Sources of Funds 5-5
  Data Gaps and Their Implications for Comparability 5-7
  Findings Concerning Individual Countries 5-12
  General Findings and Implications for Comparability 5-24
  Changes to Date and Options for Further Improvement 5-27

6. EXPENDITURES FOR PARTICULAR FUNCTIONS, SERVICES, AND COST CATEGORIES 6-1
  Expenditures for Administrative and Other Support Functions 6-2
    Findings Concerning Individual Countries 6-5
    General Findings and Implications for Comparability 6-9
    Changes to Date and Options for Further Improvement 6-11
  Expenditures for Ancillary Services 6-13
    Expenditures for Student Transportation 6-14
    Health and Psychological Services 6-18
    Food Services (Education Below the Tertiary Level) 6-21
    Housing and Meals for Tertiary Students 6-23
    General Implications of Problems Concerning Ancillary Services 6-27
    Changes to Date and Options for Further Improvement 6-31
  Expenditures for Retirement (Pensions) 6-33
    Problems in Comparing Expenditures for Pensions 6-34
    Findings Concerning Individual Countries 6-43
    General Findings and Implications for Comparability 6-48
    Changes to Date and Options for Further Improvement 6-49
  Expenditures for Other Employee Benefits 6-51
    Comparability Problems 6-52
    Findings Concerning Individual Countries 6-53
    General Findings and Implications for Comparability 6-57
    Changes to Date and Options for Further Improvement 6-58

7. SPECIAL ISSUES CONCERNING EXPENDITURES FOR TERTIARY EDUCATION 7-1
  Expenditures for Research 7-2
    The Comparability Problem 7-3
    Findings Concerning Individual Countries 7-4
    General Findings and Implications for Comparability 7-8
    Changes to Date and Options for Further Improvement 7-10
  Expenditures for Academic Hospitals 7-14
  Student Aid and Subsidies for Student Living Expenses 7-21
    Comparability Problems 7-22
    Findings Concerning Individual Countries 7-28
    General Findings and Implications for Comparability 7-34
    Changes to Date and Options for Further Improvement 7-36
    A Note on Subsidies for Upper-Secondary Students 7-39

8. STATISTICS ON USES OF EDUCATION FUNDS (EXPENDITURES BY NATURE AND RESOURCE CATEGORY) 8-1
  Current Expenditures, Capital Expenditures, and Debt Service 8-3
    Current and Capital Expenditures 8-4
    Expenditures for Debt Service 8-12
    Assessment and Options for Improvement 8-15
  The Composition of Current Expenditures 8-18
    The Distinction Between Personnel and Nonpersonnel Expenditures 8-18
    Teaching and Nonteaching Personnel 8-22
    Assessment and Options for Improvement 8-28

9. EDUCATION EXPENDITURES BY SOURCE OF FUNDS 9-1
  Problems in Comparing Sources of Funds 9-4
    Defining Initial and Final (Before- and After-Transfer) Expenditures 9-6
    Education Finance in Relation to General Government Finance 9-8
    Flows to and from Households and Other Private Entities 9-10
    Classification of Funding Sources 9-11
    Consequences of Definitional Problems 9-12
  Findings Concerning Individual Countries 9-13
  General Findings and Implications for Comparability 9-21
  Changes to Date and Options for Further Improvement 9-23

10. ENROLLMENT STATISTICS AND EXPENDITURES PER STUDENT 10-1
  Full-Time, Part-Time, and Full-Time-Equivalent (FTE) Enrollment 10-2
    Problems of Definition and Measurement 10-2
    Findings Concerning Individual Countries 10-10
    General Findings and Implications for Comparability 10-15
    Changes to Date and Options for Further Improvement 10-18
  Mismatches Between Expenditure and Enrollment Statistics 10-23
    Examples of Mismatches of Coverage and Classification 10-25
    Changes to Date and Options for Further Improvement 10-27
    Mismatches in Timing 10-30

11. GENERAL FINDINGS, CONCLUSIONS, AND IMPLICATIONS 11-1
  Comparisons of Magnitudes of Education Spending: Findings Concerning Individual Comparability Problems 11-2
    Overview 11-2
    Omission of Private Expenditures 11-4
    Omission of Expenditures of Certain Public Agencies and Institutions 11-4
    Incomplete Coverage of Costs of Support Functions 11-5
    Omission or Incomplete Reporting of Expenditures for Ancillary Services . . 11-6
    Inconsistent Coverage and Measurement of Retirement Expenditures 11-7
    Omission of Expenditures for Other Employee Benefits 11-7
    Inconsistent Durations of, and Boundaries Between, Levels of Education . . 11-8
    Reporting of Expenditures as Not Allocated by Level 11-9

Inconsistent Definitions of the Scope of Preprimary Education 11-10
Omission of Expenditures for Apprenticeship and Other Work-Based Training 11-10
Inconsistent Coverage of Adult, Continuing, and Other "Nonregular" Education 11-11
Inconsistent Coverage of Expenditures for Research 11-12
Unwarranted Inclusion of Expenditures for Teaching Hospitals 11-12
Inconsistent Coverage of Financial Aid and Subsidies for Student Living Expenses 11-13
Inconsistent Measurement of Full-Time-Equivalent Enrollment 11-13
Mismatches Between Expenditure and Enrollment Figures 11-14
Comparisons of Magnitudes of Education Spending: Findings and Conclusions by Level of Education 11-15
Preprimary Education 11-16
Primary Education and Lower-Secondary Education, Considered Separately 11-18
Upper-Secondary Education 11-20
Combinations of Levels Within the Primary-Secondary Range 11-21
All Primary-Secondary Education 11-23
Tertiary Education 11-27
All Levels of Education Combined 11-29
Comparisons Limited to Expenditures from Public Sources 11-31
Comparisons of the Composition of Education Spending 11-33
Expenditures by Level of Education 11-33
Sources of Education Funds 11-35
Uses of Education Funds 11-37
Other Dimensions of the Composition of Spending 11-38
Comparisons Between the United States and Other OECD Countries 11-40
Comparisons of Spending for Education as a Whole 11-41
Comparisons of Spending for Primary-Secondary or K-12 Education 11-42
Comparisons of Spending for More Detailed Levels of Education 11-43
Comparisons of the Composition of Spending 11-46
Summary 11-48
General Conclusions and Implications for Users and Producers of International Expenditure Statistics 11-49
General Conclusions 11-49
Implications for Policymakers and Other Potential Users 11-51
Implications for the Producers of Expenditure Statistics 11-55

REFERENCES R-1

ANNEXES

Annex A: UOC Questionnaire on Statistics of Educational Finance and Expenditure A-1
Annex B: INES Finance Data Collection Tables for EAG2 .... B-1
Annex C: The Restructured INES Finance Data Collection Tables for EAG3 .... C-1

SUMMARY

Introduction

Recent years have seen a remarkable upsurge of interest in international comparisons of education. Comparisons of education finance, in particular, have drawn the attention of policy-oriented audiences. Public officials, researchers, and the media, among others, want to know how countries differ with respect to aggregate investment in education, spending per student at each level of the education system, and sources and uses of education funds. Two international agencies, OECD and UNESCO, have long been active in compiling information on these matters, but the resulting statistics and indicators have been of limited value and often misleading because the underlying expenditure figures generally have not been internationally comparable.

The event that proved instrumental for crystallizing concerns about comparability and providing the framework for resolving them was OECD's initiation of the Indicators of Education Systems (INES) project. The project's interactive work with national data providers brought to light evidence that the comparability problems affecting education expenditure statistics were multiple, widespread, and serious. Countries were interpreting the international agencies' requests for expenditure data divergently; making conflicting decisions about what to include in, or to exclude from, their finance statistics; and categorizing and measuring expenditures in nonuniform, sometimes idiosyncratic ways. The recognition that valid international comparisons would not be possible until these problems were addressed led to the comparability study presented in this report.

The International Expenditure Comparability Study was sponsored by the U.S. National Center for Education Statistics (NCES) and carried out in close collaboration with the aforesaid INES project. The study's general purposes were to assess the international comparability of the extant statistics on education expenditures, the consequences of deviations from comparability, and the prospects and options for enhancing comparability in the future. This volume examines the nature, prevalence, severity, causes, and implications of expenditure comparability problems, the progress to date in correcting such problems, and options and prospects for further improvement. A separate volume estimates the quantitative effects of comparability problems on international comparisons of selected expenditure aggregates.

Background: International Expenditure Statistics

These points concerning the recent evolution of the OECD and UNESCO education expenditure statistics provide essential background for the discussion of comparability issues:

- Prior to the INES project, OECD and UNESCO depended on a single data source for most education statistics, the UNESCO-OECD-European Community (UOC) Joint Questionnaires. Because of inadequate definitions and other flaws, the UOC data did not provide a foundation for valid international comparisons of education spending.

- The INES project collected its first statistics in 1991 (pertaining to the academic or financial year 1988) and published its first indicator report, *Education at a Glance* (known as EAG1) in the fall of 1992. The second edition (EAG2), containing figures for 1991, was published in 1993; and the third (EAG3), with figures for 1992, was issued in 1995.

- Following the release of EAG2, the INES project, drawing heavily on preliminary findings from this study, introduced a new, completely restructured finance data collection instrument and a redesigned set of expenditure indicators. The restructured instrument was used in 1994 to collect expenditure statistics for EAG3.

- In late 1994, the restructured INES instrument was adopted by OECD, UNESCO, and Eurostat, with minor modifications, as the new joint instrument for collecting education expenditure statistics from the OECD countries. Designated the UOE (UNESCO, OECD, Eurostat) finance questionnaire, the new instrument was used in 1995 to collect statistics for all three international agencies.

Scope and Methodology

The international expenditure comparability study centered around case studies of ten selected OECD countries: Australia, Austria, Canada, France, Germany, the Netherlands, Spain, Sweden, the United Kingdom, and the United States. Each case study was designed to yield information not only on the expenditure statistics prepared by the country for submission to OECD and UNESCO but also on the country's own internal education finance statistics and, to provide a framework for interpretation, pertinent features of the country's education and education finance systems. The typical case study involved a field visit to the country, during which extended discussions were held with experts and officials of the national education ministry, the national statistical agency, and sometimes other organizations involved with education finance. Additional information was obtained from documentary sources, through follow-up communications with the national agencies, and as a by-product of the INES project's cooperative work with the countries to improve the finance data and indicators.

The information obtained from the case studies pertains mainly to expenditure statistics prepared by the countries for EAG2 (the latest statistics available when the field work was conducted) and, to a lesser extent, to the countries' UOC data submissions. Later, it became possible to update the information by reviewing national data submissions for EAG3. The OECD and UNESCO finance data collection instruments, up to and including the UOE version, have been examined in detail. Thus, although the statistics reviewed most fully are those prepared for EAG2 during 1992 and 1993, the assessment as a whole covers developments through 1994 and into 1995.

The analysis of the case study findings was first carried out country-by-country and then in a cross-cutting mode, organized by type of comparability problem. The latter, topical perspective is reflected in the organization of this final report.

Comparability Problems in General

Broadly speaking, statistics are internationally comparable insofar as they refer to the same aspects of reality in each of the countries concerned. Comparability is attainable when, and to the extent that, countries base their statistics on uniform concepts, equivalent categories, and consistent operational definitions; deviations from comparability occur when these conditions are not met. Each conceptual or definitional discrepancy that tends to make expenditure statistics internationally inconsistent is referred to in this report as a comparability problem. Comparability is always a matter of degree. A statistic may be slightly or seriously noncomparable, and more comparable between some countries than between others. The significance of deviations from comparability needs to be judged relative to the degree of inter-country variation in the statistic of interest and in light of how the statistic is to be used.

Expenditure comparability problems are of three main types: *Problems of scope or coverage* occur when countries differ with respect to which expenditure items are included in, or excluded from, statistics on education spending. Such differences reflect conflicting definitions of the boundaries of education, uneven statistical coverage of institutions or funding sources, and inconsistent coverage of spending for particular functions, services, or items of expenditure. *Problems of categorization* arise when countries inconsistently classify expenditure items by level of education, type of service provider, nature or resource category, or source of funds. *Problems of measurement* result from the use by different countries of incompatible methods to quantify the amount spent within a given expenditure category.

Effective action to correct comparability problems depends on an understanding of why the problems have occurred. The most fundamental and the only unremovable causes of noncomparability are structural differences among national education or education finance systems, such as differences in the private sector's role or in the manner in which education is organized by level. Differences in national statistical and accounting systems (e.g., broader or narrower scope, or reliance on budgetary data rather than institutional surveys) can exacerbate the effects of structural differences or create comparability problems even in the absence of structural causes. Shortcomings of the international data collection system itself, such as logically flawed categories or inadequate instructions, have caused or contributed to many lapses from comparability, but the principal source of difficulty in some cases has been the inability, or sometimes the unwillingness, of countries to report expenditures as requested. In the end, the solution to each comparability problem entails changes in the statistical practices of at least some countries, but depending on the problem's causes, action by the international agencies may play, if not an essential, than at least a supporting role.

Mirroring the structure of the full report, the main body of this summary is organized topically. It deals in sequence with problems of (1) defining the boundaries of education, (2) categorizing expenditures by level of education, (3) representing the public and private dimensions of education finance, (4) covering spending for particular functions, services, and cost categories, (5) dealing with special issues concerning expenditures for tertiary education, (6) disaggregating outlays by use of funds, (7) classifying expenditures by source of funds, and (8) calculating spending per student. The discussion of each issue or problem focuses first on the comparability of the statistics prepared for EAG2 and then on subsequent improvements. A final section covers the study's general conclusions and implications.

Defining the Boundaries of Education

One reason that countries have produced noncomparable statistics on education expenditures (and other aspects of education) is that they disagree about what "education" includes. Such disagreements arise in areas where education borders and blends into other economic sectors and social institutions. Among the most significant boundary issues are how one should differentiate between preprimary education and noneducational child care; whether work-based apprenticeship programs and certain other forms of labor training should be counted as education; and which elements of adult, continuing, and other "nonregular" education should be considered part of the education sector.

Preprimary Education

The key definitional issues concerning preprimary education are, first, what age children must reach to be considered participants in education and, second, whether a distinction should be made--and if so, how--between educational and noneducational services for children above the specified age threshold. These questions have been complicated in practice by the jurisdictional issue of whether early childhood services provided by noneducation agencies should be taken into account and by major data gaps, especially with respect to privately provided and privately funded preprimary programs.

National statistics submitted for EAG2 reflect wide variations in the coverage of expenditures for preprimary education. At one extreme, France's data covered essentially all organized services for children ages two and older; at the other, Sweden's figures represented only the cost of serving six year-olds, because services for younger children were deemed "noneducational." Other countries occupied various positions in between. The resulting gross deviations from comparability (sometimes by factors of 2 or 3) made the preprimary expenditure statistics unsuitable for international comparisons and distorted comparisons of larger financial aggregates in which such expenditures were included.

As part of the post-EAG2 redesign of the finance statistics, OECD adopted a standard definition of preprimary education covering all organized services for children ages three (in some cases, two) and older. This change alone has already done much to make the preprimary statistics more comparable, and further gains are in prospect as more countries implement the new definition and as some remaining issues of cost measurement are resolved.

Apprenticeship and Other Labor Training

Most upper-secondary students in Germany and Austria and smaller percentages elsewhere in Europe enroll in "dual system" apprenticeship programs, in which the major part of a student's time is spent in employer-financed work-based training and only a minor part in school. Different forms of training "in alternation" between school and work exist in other countries. Although the participants in such programs are counted as full-time students, no country but Germany included the costs of work-based training in its expenditure figures for EAG2. Germany, on the other hand, overstated its costs by reporting not only estimated employer expenses for training (based on sample-survey data) but also outlays for apprentices' compensation. As a result, OECD's statistics on spending for upper-secondary education (total and per student) deviated sharply from comparability, and statistics on spending for all secondary and all primary-secondary education were distorted to lesser degrees.

OECD's revised instructions to national data providers stipulate that expenditures for work-based training--but not compensation--of apprentices should be included in education spending. Germany has adjusted its figures accordingly, but other countries, most lacking the requisite sample-survey data, have not yet complied. Partly circumventing this data gap, OECD has calculated spending per student for only the school-based components of upper-secondary education, but the figures on total secondary spending and spending relative to GDP remain seriously noncomparable, with no solution in sight.

Apart from apprenticeship, comparability is also diminished by the fact that certain types of public and private labor training programs have been counted as part of education in some countries, while roughly equivalent programs have been deemed "noneducational" by other countries, and hence excluded from education statistics.

Adult, Continuing, and Other Nonregular Education

A combination of three factors has resulted in inconsistent statistical coverage of spending for adult, continuing, and other so-called nonregular education: (1) divergent national concepts of what is "regular" and "nonregular," (2) different degrees of institutional separation of regular and nonregular activities, and (3) confusing instructions from the international agencies as to whether or how outlays for nonregular programs should be reported.

Adhering to the then-operative OECD guidelines, some countries deliberately excluded expenditures for programs or institutions deemed nonregular from their EAG2 (and earlier) data submissions. (Several countries classified all part-time education as nonregular.) Some countries omitted the outlays of adult/continuing education institutions for lack of data. But other countries did not differentiate between regular and nonregular offerings of educational institutions, and hence included expenditures of the types that the aforesaid countries had excluded. The result was substantial understatement of some countries' total education outlays (e.g., the omission of one-ninth of total education spending in the case of France) relative to those of countries that had excluded no nonregular expenditures.

Recognizing that the policy of excluding expenditures for nonregular education was neither desirable nor workable, OECD switched for EAG3 to a policy of including all adult or nonregular education similar in subject matter to regular programs. In response, some countries now include programs that formerly were deliberately excluded, while others have extended their statistics to cover previously omitted adult/continuing education institutions. Although some definitional issues remain unsettled, comparability has undoubtedly been enhanced, and further improvements in this area can be expected.

Classification of Expenditures by Level of Education

Statistics on spending for all levels of education combined have few uses; most policy and research applications require expenditure figures for either individual levels (e.g., primary, upper-secondary) or limited aggregations of levels (e.g., all secondary or all primary-secondary education). The need to disaggregate brings to the fore the issue of inter-country consistency in classifying programs or institutions, and hence expenditures, by level of education.

Levels of Education According to ISCED

The taxonomy of levels underlying the OECD/INES education statistics is ISCED--the International Standard Classification of Education. (A slightly different taxonomy provided the framework for the earlier UOC data collections.) The levels recognized in ISCED are preprimary (ISCED 0), primary (ISCED 1), lower-secondary (ISCED 2), upper-secondary (ISCED 3), non-university tertiary education (ISCED 5), and university-level tertiary education leading either to a first university degree (ISCED 6) or to a postgraduate degree (ISCED 7). The loose and nonprescriptive ("flexible") character of the ISCED definitions of levels has had serious adverse effects on comparability, as outlined below.

The Constituent Levels of Primary-Secondary Education

The nationally-defined durations of the individual constituent levels of primary-secondary education vary widely (e.g., from four to six years in the case of primary education, and from two to five years in the case of general upper-secondary education), but ISCED allows each country to interpret the levels in light of its own institutional structure. The durational differences alone can translate into errors of over 100 percent in comparing countries with respect to such things as the percentage of GDP expended for education at a particular level. Moreover, countries with integrated programs spanning two ISCED levels

BEST COPY AVAILABLE

(e.g., "basic education" that combines primary and lower-secondary schooling) and countries that do not disaggregate primary-secondary spending by level in their own education finance statistics (notably the United States and Canada) have had to rely on rough proration methods to disaggregate spending by level for OECD. These problems preclude comparisons of total spending or spending relative to GDP and degrade comparisons of spending per student for the individual constituent levels of primary-secondary education. Except for marginal improvements, such as refining the proration techniques, there is no way to solve these problems short of introducing more rigorous, standardized definitions of the ISCED levels.

The Boundary Between Secondary and Tertiary Education

Most countries can differentiate clearly between expenditures for secondary and tertiary education, but two situations are problematic in this regard: First, a few countries have sectors that straddle the secondary-tertiary boundary--most notably, further education (FE) in the United Kingdom and technical and further education (TAFE) in Australia. The practice of classifying all outlays for these sectors as either secondary (UK) or tertiary (Australia) detracted from the validity of expenditure indicators for those levels in EAG2. Second, in Germany and a few other countries, students who have completed an upper-secondary program can enroll in so-called second-cycle upper-secondary programs, offering instruction that most countries would classify as postsecondary. Counting the outlays for such programs as secondary expenditures distorted the EAG2 statistics on spending for both secondary and tertiary education.

OECD has addressed the problem of boundary-straddling sectors in its revised instructions, and at least some of the countries concerned now allocate the expenditures for such sectors between the secondary and tertiary (ISCED 3 and 5) levels. Some steps have been taken to alleviate the second-cycle problem, but a full solution hinges on ISCED revision.

Sublevels of Tertiary Education

Because OECD did not attempt until recently (1995) to collect separate finance data for university and non-university tertiary education, the fact that countries do not distinguish consistently between the two levels has not affected the expenditure statistics. But the failure to disaggregate is a problem in its own right, in that comparisons of spending for tertiary education as a whole can be misleading when countries have different mixes of relatively low-cost non-university education and relatively high-cost university education. Now that countries have been asked to report ISCED 5 and ISCED 6/7 spending separately, definitional differences will translate into comparison errors. The definitions are unlikely to be standardized until ISCED's postsecondary categories are revised. Even so, disaggregation should enhance the comparability of expenditure figures for the university sector.

Separate comparisons of spending for ISCED 6 and ISCED 7 education would be valuable to policymakers but are now precluded by inconsistent definitions of the two levels and the difficulty of allocating expenditures consistently between levels. Both problems may eventually be solved, but such disaggregation is currently beyond the state of the art.

Expenditures "Not Allocated" by Level

Both ISCED and the finance data collection instruments allow countries to classify some education expenditures as "not allocated by level," but to the extent that countries do so, comparisons of spending for particular levels will be impaired. For EAG2, some countries assigned all their outlays to specific levels, while others reported amounts ranging up to 17 percent of total education spending as not-allocated. The effect was to understate, sometimes by large amounts, the latter countries' outlays for certain levels of education. To alleviate the problem, OECD has now defined very narrowly the expenditures legitimately classifiable as not-allocated and urged countries to report as little spending as possible under that heading. Some but not all countries have taken steps to comply.

As this is written, a long-running debate over ISCED revision continues under UNESCO auspices. While some parties to the debate favor the introduction of standardized, operational definitions, others have argued for retaining the present loose taxonomy. If the latter view prevails, the comparability problems outlined above are likely to be perpetuated.

The Public and Private Dimensions of Education Expenditures

Countries vary widely in the degrees to which they rely on private educational institutions and on education funds from private sources and in the extent to which they take the private side of education finance into account in their education statistics. Some countries' EAG2 data submissions omitted all private funds, while others' included private payments to public but not private institutions. Often the coverage of private funds and institutions varied sharply by level of education. Only a few countries (other than those with negligible private-sector roles) were able to provide near-comprehensive coverage of the education expenditures of households and other private entities. The lack of a distinction between public and private institutions in the EAG2 finance statistics aggravated the problem, sometimes preventing correct calculations of spending per student even for the public schools.

Incomplete reporting of private outlays is one of the more pervasive comparability problems. In addition to the already-noted omissions of much private spending for preprimary education and most private outlays for apprenticeship programs, some countries have omitted significant expenditures for independent (as opposed to government-dependent) private primary and secondary schools, and several have left out all or most spending for tertiary education by private entities other than households. The country whose EAG2 statistics were the most adversely affected by such omissions is the United Kingdom, but Germany, Austria, and Australia also omitted substantial amounts of spending from private sources.

Only three countries, Canada, France, and Spain, were able to include direct household purchases of such education-related items as books, supplies, calculators, and school uniforms in their EAG2 expenditure statistics (the United States joined them for EAG3). Appropriately designed household surveys, which most countries lack, are needed to generate data on this aspect of private spending.

The redesigned OECD finance data collection instrument distinguishes among expenditures for public, government-dependent private, and independent private institutions. The accompanying instructions strongly reaffirm the importance of including funds from private as well as public sources. Although some countries have improved their statistics in this regard, important data gaps remain. Further progress will depend on the willingness of the countries concerned either to collect new data from private institutions or to develop estimates of spending for private schools (as the United States has done for private primary and secondary education).

Expenditures for Particular Functions, Services, and Cost Categories

Many expenditure comparability problems arise from inconsistent treatment of expenditures for particular educational functions or services or from uneven coverage of particular categories of education costs. The problematic categories include expenditures for administrative and support functions, ancillary services, pensions, and other forms of nonsalary compensation (fringe benefits), plus certain items specific to tertiary education, which are discussed separately below.

Expenditures for Administrative and Other Support Functions

Support functions include operation and maintenance of education facilities, administration at all levels of the education system, and such teaching-related services as guidance and counseling, curriculum development, in-service training, and inspection. In cases where the same education authorities as are responsible for the core pedagogical functions also perform the support functions, the costs of the latter usually are fully reflected in education budgets. But most continental European countries divide responsibilities along functional lines: Central or regional education authorities hire and pay the teaching staff, while municipalities or other general-purpose local governments operate and maintain school buildings and provide other administrative and support services. These countries tend to underreport spending for the support functions, and hence for education as a whole, because the local governments in question sometimes place education-related outlays under general overhead headings (e.g., financial management or general building maintenance) rather than education headings in local financial accounts.

OECD's current instructions make clear that outlays for the full range of support functions should be included in education expenditures regardless of whether the functions are performed by education agencies or by general-purpose authorities; however, some countries would either have to modify their public accounting systems or develop new estimation methods to comply.

Expenditures for Ancillary Services

Ancillary services include student transportation, health and psychological services, food services (for students below the tertiary level), and room, board, and other welfare services for tertiary students. These services are provided to different degrees, by different types of suppliers, and under different financial arrangements in each country. This diversity, combined with differences in national statistics systems, results in such departures from comparability as the following:

- *Transportation.* Countries whose education authorities are responsible for providing student transportation generally include the costs in education expenditures (but sometimes net and sometimes gross of fees), whereas countries whose transportation authorities offer free or reduced-priced public transportation to students rarely count the subsidies as education spending. The result is to understate the relative education outlays of countries in the latter group.

- *Health and Psychological Services.* Many countries consider health and psychological services for students part of the array of social services available to the population as a whole; hence they do not include the costs in education accounts. A few countries include outlays for psychological but not health services. Only the United States and Canada generally count both types of spending as part of the cost of education. Comparisons of total education expenditures are skewed accordingly.

- *Food Services (Education Below the Tertiary Level).* For structural reasons and reasons of custom, the education systems of different countries are involved to different degrees (some not at all) in providing meals to students. Of the countries that do provide meals, some count gross expenditures for food services as education spending, while others report expenditures net of student fees.

- *Housing, Meals, and Other Services for Tertiary Students.* The fraction of the total cost of student room, board, and other living expenses that appears in education statistics varies greatly among countries. Most countries whose agencies or institutions expend large sums for such services report only net expenditures--that is, gross outlays less student fees. Such figures are not comparable to either those of countries that report gross outlays or those of countries that exclude room and board expenses from their statistics.

Although these inconsistencies, taken individually, generally result in only small comparison errors, the effects of the different problems are often additive, resulting in significant understatements of spending in some cases.

Apart from the strictly statistical problems pertaining to ancillary services, a difficult conceptual question is how one should compare countries whose agencies or institutions provide a given service with countries that leave it to students or families to provide the service themselves. In principle, either the self-financed costs should be included or all ancillary service outlays should be excluded from international comparisons. In support of the latter option, OECD has called for separate reporting of spending (both net and gross) for ancillary services, but thus far few countries have been able to comply.

Expenditures for Retirement (Pensions)

Retirement expenditure is one of the largest categories of education spending after salary itself. Countries finance pensions through funded (contributory) retirement systems, unfunded ("pay as you go") systems, and various combinations thereof. Both incomplete reporting and inconsistent measurement of pension outlays have detracted from international comparisons of education spending.

As examples of incomplete reporting, Spain and Austria omitted all outlays for civil service pensions from their EAG2 data, Australia left out pensions for retired public school staff, and several countries with multi-tier retirement systems (e.g., social security benefits plus separate teacher pensions) reported some but not all elements of retirement spending. Some countries have acted to fill these gaps, and others may do the same.

The more complex and subtle problem is that countries have used incompatible methods to quantify pension costs. Most use the *contribution method*, which measures the contributions flowing into retirement funds for personnel currently employed in the education system. A few use the *pension payment method*, which measures benefits paid to persons who have already retired. It can be shown mathematically that retirement expenditures appear sharply higher (by 100 percent or more in some cases) according to the latter approach. For example, France's use of the pension payment method seems to have exaggerated that country's total education expenditures by about 12 percent (other things being equal). Adding to the measurement problem, some countries that lack data on the costs of their unfunded pension plans have instead reported roughly estimated "fictitious payments" for retirement. OECD has now stipulated that pension costs should be measured in terms of actual or imputed retirement contributions, but compliance may be slow in coming, especially for countries that must develop new methods to estimate the costs of pension plans.

Expenditures for Other Employee Benefits

Aside from pensions, countries incur substantial costs to provide health care, disability benefits, unemployment compensation, and various other fringe benefits for education personnel. Marked variation exists in the degree to which such benefits have been reflected in education expenditure statistics.

Countries in which education agencies or institutions pay all or part of the cost of health insurance for their employees generally count such payments as education spending, but at least some countries with general national health systems or civil service systems report no health care costs. Specifically, all costs of educators' health care in the United Kingdom and Australia and most such costs in Spain were excluded from the EAG2 statistics, resulting in significant understatements of these countries' relative education outlays.

Similar variations exist with respect to other fringe benefits. The countries whose education agencies or institutions must pay for benefits directly include the costs in their expenditure figures; some countries that provide benefits through general national social security or civil service systems include estimates of the costs attributable to education personnel, but other such countries do not. The coverage of the nonsalary portion of personnel compensation is correspondingly uneven.

In addition to reaffirming that the full costs of employee benefits should be counted as education outlays regardless of the mode of financing, OECD has now asked countries to decompose personnel compensation into salary, pension, and other-benefit components. It appears unlikely, however, that many countries will be able to comply in the near future.

Special Issues Concerning Expenditures for Tertiary Education

Several issues of statistical coverage pertain exclusively, or mainly, to tertiary (especially university) education: (1) which portions of spending for research in institutions of higher education should be counted as education expenditure, (2) whether any expenditures for teaching hospitals should be included, and (3) whether or how subsidies for the living expenses of tertiary students should be reflected in expenditure statistics.

Expenditures for Research

The research issue is complicated because (1) research and teaching are in some respects "joint products" of tertiary institutions, (2) there is no internationally accepted standard method for distinguishing consistently between spending for teaching and spending for research, and (3) countries disagree about which research funds, if any, should be excluded, in principle, from education expenditures. The international agencies have provided confusing, almost self-contradictory instructions on the subject--for example, OECD guidelines stating, on one hand, that research outlays should be excluded and, on the other, that there should be no exclusion of either research related to teaching or the portion of the compensation of teaching staff attributable to research activities.

The countries examined fall into two distinct camps with respect to the statistical treatment of research spending. In one camp are such countries as Germany, Canada, and the United States, which have counted essentially all outlays for university research as education expenditures; in the other are France, Sweden, and the United Kingdom, among others, each of which has excluded some spending for separately funded, separately budgeted, or separately administered research. Other things being equal, the tertiary expenditures of countries in the second group have been understated, sometimes substantially, relative to those of countries in the first group. Moreover, even comparisons among the countries that exclude some research outlays have been impaired by disparate national definitions of the excludable categories.

OECD has attempted to address the problem by stipulating in its revised instructions that countries should include all spending for university research (with only narrow exceptions) in their tertiary expenditure figures. Some countries have responded by broadening their coverage of research funding, but others have been either unable to comply or unwilling to do so unless they can be assured that tertiary spending will also be compared net of research. Although OECD would like to satisfy the latter demand, no satisfactory method has yet been devised for netting out research in an internationally consistent manner.

Expenditures for Teaching Hospitals

In some countries the hospitals in which medical personnel are trained belong to universities, and their expenditures are included in university budgets; in certain other countries, the education authorities do not operate the teaching hospitals but are nevertheless obliged to pay a share of hospital costs. To the extent that such countries count hospital expenditures (other than those specifically attributable to training) as education spending, their tertiary outlays will be exaggerated (other things being equal) relative to those of countries that do not.

BEST COPY AVAILABLE

Two of the countries examined, Germany and Austria, included substantial portions of the general expenditures of academic hospitals in their EAG2 data submissions. (The Netherlands had included such outlays in earlier statistics but excluded them for EAG2.) The remaining countries generally have excluded all or nearly all hospital outlays. OECD's post-EAG2 instructions state that countries should not report any hospital costs other than those specifically attributable to training of medical personnel, but it is not certain whether or when the affected countries will comply.

Student Aid and Subsidies for Student Living Expenses

Countries vary widely in the nature and extent of their financial aid to tertiary students and, especially, in the degree to which they subsidize students' living expenses. Because the EAG2 data collection forms did not distinguish between student subsidies and expenditures for tertiary institutions, many countries commingled the two in their data submissions. Consequently, countries that subsidize large fractions of student living expenses reported misleadingly high outlays for tertiary education (other things being equal), compared with countries that require households to cover most living costs themselves. Further blurring the comparisons, a few countries decided on their own to omit subsidies for living expenses, making their figures noncomparable with those of countries that had included such spending.

Incomplete statistical coverage of financial aid has also been a problem. Central government scholarships are almost always fully reported, but many countries have omitted such items as scholarships from subnational governments and private sources, student loans, subsidized student housing and meals, subsidies in kind (e..g., free health care and transportation), family allowances contingent on student status, and special tax benefits for students and their families. In addition to interfering with comparisons of tertiary spending, these omissions have precluded comparisons of financial aid itself.

An additional difficulty is that some countries cannot distinguish between the portion of financial aid that offsets tuition fees and other instruction-related costs and the portion remaining to help defray living expenses. Lacking this distinction, it is difficult to compare countries with respect to the shares of the cost of tertiary education borne by the public and private (household) sectors.

OECD's new finance data collection forms distinguish sharply between institutional expenditures and student subsidies, making it possible to compare countries with respect to either the former only or the two combined. Countries have been urged to report financial aid comprehensively (including student loans and indirect subsidies), but how many countries will be able to comply is uncertain. The problem of distinguishing between tuition offsets and subsidies for living expenses has been recognized but not fully solved. Although progress has been made, additional effort is needed to improve this aspect of the tertiary finance statistics.

Statistics on Uses of Education Funds

In addition to seeking comparisons of expenditure magnitudes, policymakers and researchers frequently ask how education funds are used ("what education money buys") in different countries. To provide answers, OECD has asked countries, first, to break down expenditures by *nature* (current expenditure, capital expenditure, and debt service) and then to decompose current expenditure by *resource category* (compensation of teaching and nonteaching personnel and spending for nonpersonnel resources).

Current Expenditures, Capital Expenditures, and Debt Service

Most countries use roughly equivalent definitions and methods to distinguish between current and capital spending. There was confusion in the past as to whether countries should include any debt service expense in capital outlay, and some countries did so for EAG2; but OECD has now made clear that capital outlay refers to the volume of capital formation in education in a given year, without regard to how the capital is financed.

A special problem encountered in Austria and Sweden is that the education authorities of these countries usually do not construct or purchase school buildings themselves but instead lease buildings from separate public building agencies. As a result, capital outlay "disappears" from education accounts, to be replaced by current outlay in the form of lease payments. Until these countries change their statistics to reflect the underlying reality, their current and capital expenditure figures will have to be excluded from international comparisons.

Most of the countries examined have been unable to report expenditures for servicing education debt (interest payments and repayment of principal), usually because borrowing for education is combined with borrowing for other public purposes. It seems necessary for the foreseeable future to omit debt service outlays from comparisons of education expenditures.

The Composition of Current Expenditures

Although OECD's requested breakdown of current spending seems straightforward, countries have been unable to apportion their expenditures consistently among the specified resource categories. In the EAG2 statistics, some countries blurred the distinction between personnel compensation and nonpersonnel outlay by, among other things, (1) placing all spending for certain ancillary and support functions in the nonpersonnel category, (2) reporting all payments for contracted support services as nonpersonnel outlay, and (3) improperly including in nonpersonnel expenditures various transfer payments and subsidies. Although the post-EAG2 changes in OECD's finance data collection instrument have clarified the category definitions and led to some improvements, many countries lack the data needed to report as specified, so the breakdowns by resource category remain generally noncomparable.

The main problem with the distinction between compensation of teaching and nonteaching personnel is that some countries define the teaching category more broadly than others. The United States limits it mainly to classroom teachers, but most countries also include school heads and assistant heads, and many European countries add other categories of professional, pedagogical, and administrative staff. Gaps in some countries' data on compensation of support staff (as noted above) further detract from the comparisons. OECD has restructured the personnel categories and provided more precise and detailed definitions, but many countries would have to carry out special studies or draw on supplemental data sources (e.g., personnel data files) to provide the requested breakdowns.

Education Expenditures by Source of Funds

Information on the sources of education funds bears directly on some salient issues of education policy, among them issues of decentralization, privatization, fiscal equity, and student choice. To compare funding sources internationally, one must distinguish between funds from public and private sources, disaggregate the public funds by level of government (central, regional, local), and separate the expenditures of households from those of other private entities. Further, to reflect the many financial transfers that occur in national education finance systems, it is essential to differentiate between the initial (before transfer) and final (after transfer) sources of education funds.

In the absence of a well-defined international accounting structure, countries arrived at disparate interpretations of the initial/final and public/private distinctions. There was confusion as to whether final expenditures were to be classified as public or private according to the identity of the *final purchasers* of education services or according to the type of *service provider*. Some countries chose one approach, and some the other, making comparisons impossible. Countries also were unsure about how to represent flows of funds to and from the household sector--scholarships, tuition payments, outlays for living expenses, etc.--and about whether or how to take account of general-purpose intergovernmental transfers to regional or local authorities responsible for education. Partly because of these definitional uncertainties and partly because of data limitations, some countries' EAG2 data submissions lacked breakdowns by initial or final source of funds or both, while others' contained incomplete breakdowns or left out funds from some sources (usually private) entirely. Some of the source-of-funds statistics were too badly flawed to be used, and OECD was unable to present adequate information on this aspect of education finance in either EAG1 or EAG2.

A major accomplishment of the post-EAG2 restructuring of the finance statistics was to establish a sound framework for comparisons of sources of education funds. Each country is now asked to report all types of education spending by each funding source, distinguishing among direct expenditures for education services and the various types of transfer payments and subsidies. OECD, not the individual country, now calculates initial and final expenditures. Some problems remain: No satisfactory method has yet been devised for representing the role of general intergovernmental transfers in education finance; certain points concerning financial aid and outlays for student living expenses still need clarification; and data gaps still impede comparisons of public and private shares of education spending. Nevertheless, the source-of-fund statistics have been significantly improved.

Enrollment Statistics and Expenditures per Student

The validity of comparisons of education spending per student depends on the comparability of not only the expenditure statistics but also the corresponding statistics on enrollment. Two comparability problems associated with the enrollment figures are (1) internationally inconsistent measurement of full-time-equivalent (FTE) enrollment, and (2) mismatches in the coverage of the expenditure and the enrollment statistics.

Full-Time, Part-Time, and Full-Time-Equivalent Enrollment

To compare spending per student internationally, one must divide each country's expenditure for a given category of education by the corresponding FTE enrollment, but countries have followed inconsistent approaches to classifying students as full-time or part-time and translating the latter into FTEs. In contrast to the English-speaking countries, which base the distinction on the extent of the individual student's participation, many continental European countries automatically classify anyone participating in a "regular" program as full-time and attach the part-time label only to adult or other "nonregular" students. Reinforcing this definitional discrepancy, OECD's approach prior to 1995 was to rely on country-supplied, often empirically unfounded factors, or an arbitrary default factor (one part-time student equals one-half of an FTE), to translate part-time into full-time-equivalent enrollment.

Inconsistent measurement of FTE enrollment has undercut comparisons of spending per student in preprimary, upper-secondary, and--especially--tertiary education. The key point regarding the tertiary level is that some countries reject the concept of "part time university student." They count every university student as full-time, even though many students clearly participate at low levels and take much more than the theoretically required time to earn a university degree. For this reason, the tertiary expenditures per student of such countries as Germany, Austria, and Sweden are seriously understated relative to those of countries that count each part-time student as only a fraction of an FTE.

The new UOE data collection instrument establishes the principle that full-time or part-time status is an attribute of a student's participation in education, not a characteristic of the educational program in which the student is enrolled. It sets forth operational rules that may help to standardize the measurement of FTE enrollment at all the pre-tertiary levels. But because no satisfactory approach has yet been developed for quantifying FTE tertiary enrollment, statistics on spending per tertiary student are likely to remain noncomparable for some time to come.

Mismatches Between Expenditure and Enrollment Statistics

Mismatches occur either when students are counted for whom expenditures are not reported, or when expenditures are reported for students who are not counted. The result is understated or overstated spending per student, respectively. Several steps have been taken to eliminate the multiple mismatches reflected in the EAG2 data. Countries are now asked to report both spending and enrollment by type of service provider, eliminating the mismatches formerly caused by gaps in the private school data. More complete coverage of adult and other nonregular education has had a positive effect. A system of missing data codes now helps OECD to avoid inappropriate calculations. In addition, a set of special "alignment tables" in the UOE instrument allows countries to adjust their enrollment figures to match the availability of expenditure data.

Conclusions and Implications

Summing up the study's results, this final section presents (1) conclusions about the comparability of expenditure statistics in general, (2) findings regarding comparisons of spending for particular levels of education and particular aspects of the composition of expenditures, (3) a note on expenditure comparisons between the United States and other countries, and (4) remarks on implications of the study's findings for both the users and the producers of education finance statistics.

General Conclusions

The international expenditure statistics collected and published by OECD and UNESCO in the past reflect multiple, serious, and widespread comparability problems, but the size and significance of deviations from comparability varies, depending on the expenditure categories, levels of education, and countries in question. The EAG2 statistics on spending for particular levels of education and statistics on the composition of spending generally are more gravely flawed than the statistics on broad expenditure aggregates, but even the EAG2 figures on total spending for all primary-secondary education and all levels of education combined are severely noncomparable among some countries.

Since 1993, important progress has been made towards enhancing the international comparability of the education expenditure statistics. The gains stem from a combination of OECD's efforts (guided in part by the results of this study) to improve the international data collection instruments and intensified efforts by some countries to provide more comprehensive and comparable statistics. Some comparability problems have been wholly or partly solved, while others remain to be addressed. Although considerable further work is needed, the prospects have brightened for upgrading the education expenditure statistics to the point that policymakers can depend on them. Increasingly, as more of the conceptual and definitional issues have been settled, the critical factor has become the willingness of individual countries to fill data gaps and to report expenditures according to standard international categories.

Comparisons of Magnitudes of Education Spending

Statistics on total spending and spending per student for all levels of education have been affected adversely by the comparability problems cited above, but some levels have been

BEST COPY AVAILABLE

affected more strongly than others. The study's main findings concerning both the EAG2 statistics and the generally improved post-EAG2 statistics for each level are as follows:

Preprimary Education. Diverse national definitions of preprimary education, coupled with differences in statistical coverage, especially of private spending, make the EAG2 statistics unusable for comparisons of total preprimary spending and for any but tentative, carefully qualified comparisons of spending per preprimary student among a subset of countries. Subsequent changes have eliminated the more glaring definitional discrepancies, improving matters to the point that rough comparisons are now feasible among most of the countries concerned.

The Constituent Levels of Primary-Secondary Education. The ISCED problem alone--that is, the lack of standardized definitions of levels--rules out comparisons of total spending or spending relative to GDP for primary, lower-secondary, or upper-secondary education; however, rough comparisons of expenditure per student are feasible in some instances. The main points pertaining to particular levels are as follows:

> *Primary Education*. Differences in the nationally defined durations of primary schooling preclude valid comparisons of total spending for primary education. At the time of EAG2, multiple departures from consistent coverage and measurement further undermined comparability, invalidating comparisons of per-student as well as total expenditures, but now that many of the problems have been alleviated, the comparability of the figures on spending per primary student should be significantly improved.
>
> *Lower-Secondary Education*. The situation is essentially the same as for primary education, except that the variations in nationally defined durations of lower-secondary eduction are greater, and some countries have not provided separate data on spending for this level.
>
> *Upper-Secondary Education*. In addition to suffering from all the same problems as affect comparisons of primary and lower-secondary spending, the EAG2 statistics on upper-secondary spending were further distorted by difficulties concerning apprenticeship programs, adult education, and the secondary-tertiary boundary. Variations in duration still prevent comparisons

of total upper-secondary spending, but rough comparisons can now be made of spending (for school-based services only) per upper-secondary student.

Combinations of Levels. The EAG2 statistics on total spending for primary plus lower-secondary education and for lower- plus upper-secondary education are not adequate for international comparisons. The spending-per-student statistics for the primary/lower-secondary combination (but not those for all secondary education) are good enough for rough comparisons among a subset of countries. The post-EAG2 improvements have undoubtedly enhanced the comparability, and hence the usefulness, of the statistics on spending per student, but the impediments to comparisons of total spending for these combinations of levels have yet to be removed.

All Primary-Secondary Education. The EAG2 statistics on total spending for primary-secondary education as a whole are usable for such relatively undemanding purposes as ranking countries with respect to expenditure relative to GDP, but only if the countries with the most serious comparability problems are excluded. The legitimate uses of the EAG2 statistics on spending per primary-secondary student are even more limited because of problems with the enrollment statistics. The post-EAG2 improvements have reduced the deviations from comparability significantly, but probably not yet to the point that the statistics are adequate for more demanding applications.

Tertiary Education. The EAG2 statistics on both total tertiary spending and spending per tertiary student are seriously misleading. Subsequent changes in the treatment of expenditures for research, hospitals, and student aid may have made rough comparisons of tertiary spending relative to GDP feasible, but the statistics on expenditures per tertiary student will remain unready for international comparisons until consistent measures of FTE tertiary enrollment are developed.

All Levels of Education Combined. The EAG2 statistics on aggregate expenditures for all levels of education combined are adequate for such purposes as ranking or grouping countries with respect to spending relative to GDP, but only if the countries with the most severe comparability problems are excluded. The post-EAG2 statistics, though improved in multiple respects, are still usable only for broad-brush comparisons among less than the full set of countries. (Essentially the same conclusions would apply to comparisons of spending per student for all levels combined, except that the issue of comparability does not arise because such broad comparisons of per-student spending are inherently not meaningful.)

Comparisons Limited to Expenditures from Public Sources. Many published comparisons of education expenditures focus on expenditures from public sources (usually but not always because many countries do not report private outlays). Statistics on total public spending generally are more comparable internationally than statistics on combined public and private spending for the same level of education; in particular, some of the problems that detract most seriously from comparisons of public plus private spending for preprimary, upper-secondary, and tertiary education have no adverse effects on comparisons of public spending alone. On the other hand, comparisons limited to funds from public sources are less useful than comparisons of total spending, can be seriously misleading in some cases, and are not meaningful when the variable to be compared is expenditure per student.

Comparisons of the Composition of Spending

The following are the study's conclusions concerning the three main dimensions of the composition of education spending addressed by the OECD statistics:

Expenditures by Level of Education. Variations in the nationally defined starting points and durations of levels have ruled out direct inter-country comparisons of the distribution of spending by level of education. The post-EAG2 improvements enhance the prospects for comparing the preprimary, primary-secondary, and tertiary shares of total spending, but comparisons of the primary and secondary (or lower-secondary and upper-secondary) shares will remain infeasible until the definitions of these levels are standardized.

Sources of Education Funds. Inconsistent interpretations of initial and final funding sources and gaps in the coverage of private funds made the EAG2 statistics on final sources of funds unusable, and left the statistics on initial sources incomplete and distorted. As a result of subsequent improvements, the distribution of public funds by level of government can now be compared internationally (although general-purpose intergovernmental transfers are not taken into account). Data gaps still limit comparisons of the public and private shares of education spending to only a small subset of the countries.

Uses of Education Funds. Current and capital shares of spending can be compared across countries, provided that the few countries with unusual methods of financing capital are excluded. Internationally inconsistent category definitions invalidated the EAG2 comparisons of shares of current spending allocated to teaching staff, nonteaching staff, and nonpersonnel resources. The post-EAG2 breakdowns of expenditure by resource category, though improved in some respects, are still inadequate for international comparisons.

Comparisons Between the United States and Other Countries

The salient points concerning the legitimacy of expenditure comparisons between the United States and other OECD countries are as follows:

- The EAG2 and, especially, the post-EAG2 statistics on spending for all primary-secondary education and for all levels of education combined are suitable for showing in general terms how the United States ranks in expenditure relative to GDP compared with most, but not all, of the other countries examined.

- Both the EAG2 and the post-EAG2 statistics on total spending for the more detailed levels of education--preprimary, primary, secondary--are too distorted by definitional differences and differences in statistical coverage to be used for even rough comparisons between the United States and other countries.

- The EAG2 statistics on spending per primary student and the post-EAG2 statistics on spending per preprimary, primary, and secondary student appear adequate for rough comparisons between the United States and many, but not all, of the other countries, but this has to be said tentatively because the procedures for allocating U.S. K-12 expenditures by level may have skewed the U.S. figures.

- The EAG2 statistics and, to a lesser extent, the post-EAG2 statistics, overstate U.S. spending for tertiary institutions (as a percentage of GDP) relative to that of a number of other countries. Inconsistent measurement of FTE enrollment is a serious enough problem by itself to invalidate or degrade comparisons of spending per tertiary student between the United States and half the countries covered by this study.

- Definitional discrepancies and data gaps prevent valid comparisons between the United States and other countries of the distribution of spending by level of education, the shares of education funds derived from public and private sources, and the shares of funds expended for teaching and nonteaching personnel; however, the post-EAG2 figures do allow qualified comparisons of the distribution of public funds by level of government.

The main steps the United States could take by itself to improve comparisons with other countries would be to fill certain data gaps (regarding, e.g., expenditures of private institutions and student loans) and to refine the methods used to apportion K-12 outlays by level. But because the comparisons have been impaired more by the shortcomings of other countries' statistics than by those of the U.S. statistics, the opportunities for remedial action rest mainly in the hands of the international agencies and data providers abroad.

Implications for Users and Producers of Expenditure Statistics

The main implication of this report for prospective users of international education statistics is clear-cut: The largely negative findings about the comparability of the EAG2 (and prior) expenditure statistics imply that these statistics are not adequate to address policymakers' concerns or to satisfy the needs of researchers, policy analysts, and other interested parties. At best, the more aggregative expenditure figures can be used for ranking and grouping countries, but not for such more-demanding applications as quantifying expenditure differentials or, especially, examining relationships between expenditures and measures of educational services or outcomes. On the other hand, the more positive findings concerning recent and prospective improvements imply that comparability has been significantly enhanced since EAG2, and that the number and variety of feasible applications of the expenditure statistics can be expected to increase further if the effort to upgrade the statistics is sustained.

The central message for the producers of statistics, meaning both the international agencies and the national data providers, is that although much has been accomplished during the last few years, further improvement efforts--and efforts of a somewhat different kind--are needed to achieve a reasonable degree of international comparability. Some of the main definitional issues still to be resolved are generic issues concerning all education statistics--the most critical of which, by far, is how ISCED can be transformed into a more rigorous taxonomy capable of supporting valid disaggregated comparisons of education spending. Certain issues pertaining specifically to education expenditures also require attention--for instance, questions concerning outlays for apprenticeship programs, pensions, and research. But even though there is more to do on the conceptual front, the time seems to have come for a shift in priorities towards implementation at the national level. The international agencies can contribute to better implementation through technical assistance and persuasion, but the main burden necessarily falls on the individual-country data providers. Only they can fill data gaps, modify classification schemes and measurement methods, and translate their statistics from national to international categories. Whether the expenditure statistics will improve to the point that they can be used for more demanding policy and research applications depends ultimately on the ability and willingness of individual countries to take the sometimes difficult steps necessary to generate internationally comparable information.

Chapter 1

INTRODUCTION AND BACKGROUND

The last few years have seen a remarkable upsurge of interest in international comparisons of education. References to the educational systems and practices of other countries, formerly few and far between, now figure prominently in national debates over education policy. Decisionmakers want to know whether their own students stay in school as long, learn as much, and prepare as well for careers as students elsewhere; whether curricula are as demanding and graduation requirements as high at home as abroad; and whether their country's schools are as well staffed and equipped--and as expensive--as the schools of its neighbors. The consequent heightened demand for comparative information has stimulated the development of international education statistics, among them the statistics on education expenditures that are the subject of this report.

Although education finance is only one of the many aspects of education that statisticians and analysts have sought to compare across countries (some others include participation, attainment, staffing, educational processes, and student performance), it is one with special significance for policy audiences. Budgets are the main instruments that governments, legislatures, and managers of institutions use to give force to their views of how education should be conducted. Policies concerning access to education, educational priorities, the institutional structure of education, the mix of educational offerings, and strategies for educational improvement all take concrete form through decisions about the level and makeup of education spending. It should not be surprising, then, that international comparisons of education expenditures have drawn special attention, matched only by comparisons of educational outcomes. The two are related as ends and means: one, the results that society obtains from its schools; the other, the investment in people and other resources that makes the results possible.

The specific international expenditure comparisons that have attracted the notice of policymakers, researchers, and other audiences range from broad comparisons of total national spending for education as a whole to detailed comparisons of the composition of spending and the distribution of funds. Among the things national policymakers typically want to know are:

- How much their country invests in education (in both absolute and relative terms) compared with other countries at similar stages of economic development,
- How much their country spends on each student (at each level of the educational system), compared with spending per student elsewhere,
- How their country distributes its educational resources by level of education and type of institution or program, as compared with the corresponding distributions of other countries,
- How their country's mix of funding sources compares with the sources relied on by other countries,
- Whether their country differs from other countries in the types of personnel hired and resources purchased with education funds ("what money buys").

International statistics are worthwhile, from the policymakers' standpoint, to the extent that they can provide valid answers to queries of these kinds.

Concerns About Comparability

But even as interest in international expenditure comparisons began to grow--and with it, the potential influence of such comparisons on policy--concerns arose about the validity of the comparisons and the quality of the underlying data. Although international agencies have been collecting and publishing comparative education statistics, including expenditure statistics, for at least two decades, for most of that period both the data and the data collection methods went largely unexamined. When heightened relevance brought greater scrutiny (circa 1990-1991), reasons quickly accumulated to question the legitimacy of comparing the existing spending figures across countries. It became apparent that some countries had defined "education" much more broadly than others for purposes of international financial reporting. Cases came to light in which countries had excluded major categories of spending that other countries had included (sometimes even the expenditures of whole educational sectors). In other cases, countries had categorized expenditures inconsistently or based their statistics on incompatible measurement methods. While the prevalence, scale, and significance of the discrepancies all remained to be explored, it soon became clear that the international comparability of education expenditure statistics could not be taken for granted.

The early indications of threats to comparability, though far from conclusive, called into question the usefulness of published international statistics and indicators. If government officials, members of parliament, and educational administrators--not to mention the media and general public--are to be told that their country spends less (or more) per student or invests a smaller (or larger) share of its resources in education than other, similarly situated countries, they should have the right to expect that the underlying statistics refer to the same aspects of reality in each of the countries concerned. If the expenditure statistics are not comparable--if some countries' figures are substantially more inclusive or differently defined than others'--false inferences and flawed decisions may follow. Many of the parties concerned came to see it as essential, therefore, first to assess the comparability of the available expenditure statistics and then, if and to the extent necessary, to take appropriate action to correct comparability problems.

BEST COPY AVAILABLE

A development that proved instrumental both for crystallizing the concerns about comparability and providing the framework for resolving them was OECD's initiation of the Indicators of Education Systems (INES) project. This project, established in the late 1980s, had as its purpose the development of sound, useful, and policy-relevant international education indicators, suitable for meeting the information needs of decisionmakers in the OECD member countries. INES offered the opportunity for a fresh start in the field of international education statistics. It undertook to develop new statistical frameworks and data collection instruments in several key areas--one of the first being education finance. International comparability was an important consideration from the outset and eventually became one of the dominant concerns.

From the early days of the INES project there was reason to expect problems in comparing the education expenditures of different countries, but no one knew for sure how serious the comparability problems were or how difficult it would be to correct them. By late 1991, however, as work went forward to collect and process data for the first INES education indicator report, *Education at a Glance*, more concrete evidence had become available. It had become clear from both the national data submissions to INES and the continuing dialogue between INES staff and the national data providers that the problems were multiple, widespread, and substantial. Countries were interpreting the international data requests divergently; making conflicting decisions about what to include in, and exclude from, their figures; and categorizing expenditures in nonuniform, sometimes idiosyncratic ways. Many INES participants, both at OECD and in the countries, expressed concerns about these inconsistencies and called for steps to enhance the comparability of future expenditure statistics. The conclusion that comparability issues had to be addressed was subsequently reinforced by the prominence given to the finance indicators in press coverage of *Education at* *a Glance* and by the political problems created for some governments by sometimes questionable spending comparisons based on the new OECD figures.

Origins and Objectives of the Expenditure Comparability Study

The decision of the U.S. National Center for Education Statistics (NCES) to sponsor the international education expenditure comparability study reflected a combination of specifically American concerns about the soundness of comparisons between the United States and other countries and the more general desire to further OECD's efforts, through the INES project, to establish a framework for valid international comparisons of education. This same combination of motives is reflected in the study objectives, outlined below.

The international comparisons that first elicited strong reactions from education policymakers in the United States were comparisons of educational achievement. By the beginning of the 1990s, multiple international studies carried out by the IEA (International Association for the Evaluation of Educational Achievement) and IAEP (International Assessment of Educational Progress) had raised serious concerns about the apparent low achievement of U.S. students, especially in mathematics and science, compared with that of students in other economically advanced countries. The accumulation of such international-comparative findings, combined with internal evidence that U.S. educational performance could be considered unsatisfactory, helped to stimulate a major national education reform movement. Of more immediate relevance, it led to inquiries into what other countries do differently in education that may account for their seemingly greater success. Comparative questions were raised about many aspects of education--curriculum, governance, standards and testing, teacher preparation, and pedagogy, among others--but prominent among them were questions concerning the funds and resources that different countries devote to their schools.

The attention of U.S. education policymakers was drawn sharply to expenditure comparisons by a controversy that erupted in 1990 over claims that the United States was "underspending" for K-12 (kindergarten through 12th grade--i.e., upper-secondary) education compared to its major economic competitors. The claims emanated initially from a Washington-based advocacy group known as the Economic Policy Institute (EPI), which had used UNESCO expenditure figures to show that the share of GDP devoted to K-12 education was lower in the U.S. than in most other industrialized countries (Rasell and Mishel, 1990). Although some of the ensuing debate revolved around the issue of whether absolute or relative comparisons of spending are more meaningful--that is, whether one should compare expenditure per student or education expenditure as a percentage of gross domestic product (GDP)--the subsequent interchanges among proponents and critics of the "underspending" thesis also shed light on the conceptual and technical problems of comparing education expenditures across countries. In particular, they drew attention to the shortcomings of the then-available UNESCO and OECD education finance data (see, e.g., Barro, 1990; Nelson, 1991; Ram, 1991). The policymaking branch of the U.S. Department of Education was drawn into the debate over the validity of international comparisons of spending, as was the Department's statistical arm, NCES.

As the agency representing the United States in OECD's INES project, NCES had already become involved in the INES effort to develop improved expenditure statistics and indicators. To help advance that work, as well as to deal with the issues brought to light by the aforesaid debate, NCES began seeking information about problems in comparing education spending across countries and options for improving such comparisons in the future. Among other things, the agency commissioned an analysis of the comparability issues raised by the new expenditure indicators that INES was then seeking to construct. The resulting review of possible threats to comparability (Barro, 1990b) helped to alert both NCES and INES to the potential difficulties and provided much of the framework for the present study.

At about the same time, NCES began to assemble its own international comparisons for publication in the annual U.S. education indicator report, *The Condition of Education*. In addition to achievement comparisons drawing on the IEA and IAEP results, these included comparisons, based on published OECD and UNESCO data, of public expenditure for primary and secondary education and, subsequently, higher education as well.[1] NCES's recognition that these comparisons rested on dubious data reinforced the agency's determination to help improve the comparability of future international expenditure statistics.

Early in 1992, NCES reached the conclusion that the comparability of education finance statistics needed to be investigated in depth and decided to sponsor a study of the issue. In June 1992, NCES awarded a contract for the Study of the International Comparability of Statistics on Education Expenditures. The study team, consisting of Dr. Stephen M. Barro of SMB Economic Research, Inc. (principal investigator) and Dr. Joel D. Sherman and others at Pelavin Associates, Inc. (now Pelavin Research Institute) commenced work in September 1992.

At the outset, an agreement was reached with OECD that the inquiry would be carried out in close collaboration with the INES project, and, specifically, that the work would be strongly oriented towards improving the finance indicators for the third and subsequent editions of *Education at a Glance*. In October 1992, the INES Secretariat sent a letter to INES national coordinators and Technical Group representatives describing the study and inviting selected countries to participate. This collaboration with OECD proved crucial, as it permitted an inquiry in greater depth and covering more countries than would otherwise have been possible.

The general purposes of the expenditure comparability study were to assess the international comparability of the existing OECD and UNESCO statistics on education expenditures, the implications of deviations from comparability, and the prospects and options for enhancing comparability in the future. These broad goals translated into the following more specific objectives:

1. *To identify expenditure comparability problems.* This objective, which provides the foundation for all the others, entailed identifying differences among countries in the coverage, content, and categorization of both national education expenditure statistics and the expenditure statistics submitted to international agencies.

2. *To determine the prevalence, extent, and severity of comparability problems.* "Prevalence" refers, in this context, to the number of countries in which a problem is encountered, "extent" to the range of educational levels and sectors affected by the problem, and "severity" to the degree to which expenditure statistics deviate from comparability because of the problem in question.

3. *To establish the causes of comparability problems*, distinguishing among underlying differences in national education and education finance systems, differences in national statistical systems and practices, and limitations of the international data collection process.

4. *To quantify, where possible, the effects of deviations from comparability on international comparisons of education spending.* This involved estimation of the combined (net) effects of multiple comparability problems on selected aggregate expenditure statistics of the individual countries.

5. *To identify specific options available to individual countries for improving the international comparability of their expenditure statistics*, including possible changes in both the underlying national statistics and the methods used to prepare the data submitted to international agencies.

6. *To identify actions that the international agencies could take to enhance international comparability*, including changes in the structure of the international expenditure statistics, changes in definitions and instructions, and changes in the international data collection process.

This volume reports on what has been learned in pursuit of all but one of the foregoing objectives. The exception is the fourth objective, quantification of the effects of comparability problems on selected international comparisons of education spending. Because this quantitative analysis required its own analytical framework and methodology and different data from the remainder of the expenditure comparability study, its results are presented in a separate volume (Sherman, 1996).

Background: International Statistics and Indicators

Before describing the scope and design of the study, we pause to fill in certain items of background information needed to make the explanations coherent. These concern the sources of the international expenditure statistics that the study has sought to assess and the specific expenditure statistics and indicators whose comparability is in question.

Although OECD and UNESCO have been publishing separate compilations of education statistics for many years, the two agencies depended until recently on a single shared data collection instrument--the UNESCO-OECD-European Community (UOC) Joint Questionnaires.[2] In particular, all the expenditure statistics used by both agencies prior to the INES project derived from the Joint Questionnaire on Statistics of Educational Finance and Expenditure, known as form UOC2. In 1991, the INES project began to collect its own education statistics, including expenditure statistics, from the OECD member countries. Consequently, during the period when information was being gathered for this study, 1992 through 1994, two separate and at least semi-independent sets of international statistics on education spending coexisted.[3]

This section describes the UOC and INES data collection instruments and the corresponding UNESCO and OECD expenditure statistics and indicators. In addition, it reviews selected features of the International Standard Classification of Education (ISCED), which has provided the framework for both the UNESCO and the OECD statistics.

The UOC Joint Questionnaire on Education Expenditures

The UOC2 expenditure questionnaire was developed during the 1970s and remained unchanged in its essentials up to 1994. The questionnaire was produced and disseminated annually by UNESCO, but the resulting data were distributed to all three sponsoring agencies to be used as each saw fit.[4]

The principal UOC2 tables provide for cross-classification of expenditures by (1) sector of origin and destination of funds, (2) purpose of expenditure, and (3) level of education (sample tables are reproduced in Annex A). The sectoral classification consists of the following four-way breakdown: public expenditures for public education, public subsidies for private education, private expenditures for public education, and private expenditures for private education. "Purpose of expenditure" refers mainly to the different categories of resources purchased by providers of educational services--teaching staff, administrative staff, books and teaching materials, etc.--but the breakdown also includes expenditures for scholarships and other subsidies. The breakdown by level of education closely resembles that specified in ISCED but with a few important exceptions (see the remarks on ISCED, below).

In addition, countries are asked to report education funds derived from different public sources (levels of government) and private sources (enterprises, households, and others). However, this more detailed itemization by source applies only to expenditures for all levels of education combined, not to expenditures for particular levels or types of education.

The most noteworthy feature of Form UOC2 from the perspective of this study is that the finance questionnaire came with only the most minimal definitions and instructions--no more than two pages, printed on the data collection form itself. There was no technical manual, no further explanations of data categories, nor any other form of detailed guidance for the national data providers. As is perhaps obvious, the lack of such information had major negative implications for international comparability. In addition, certain logical or structural flaws in Form UOC2, to be discussed later, also contributed to comparability problems.

UNESCO Expenditure Indicators

Each year, UNESCO publishes a *Statistical Yearbook* that presents basic statistics on, among other things, the public education expenditures of approximately 200 countries and territories (see, e.g., UNESCO, 1993). The expenditure statistics include total and current public spending (private outlays are excluded), expressed in units of national currency and as percentages of both gross national product (GNP) and total government spending. Public expenditures are broken down by level of education and by the "purposes" of expenditure mentioned above. More recently, UNESCO launched a new publication, *World Education Report* (1991 and 1993), which, in addition to examining selected educational issues and themes, presents such finance indicators as expenditure relative to GNP and current expenditure per pupil relative to GNP per capita.

OECD's Pre-INES Expenditure Indicators

Since the 1980s, OECD has published compendia of education statistics for the OECD member countries, the latest of which is *Education in OECD Countries* (1993), covering the financial years 1988-89 and 1989-90. The 1993 edition was also the last, as the series has been superseded by the INES indicator reports and the associated statistical annexes. The OECD compendia, based on data from the UOC2 Joint Questionnaire, cover mainly public expenditures (current and capital) for education but provide limited information on private expenditures as well. Education expenditures are expressed as percentages of GDP, and public education expenditures are expressed as percentages of total public spending for all government functions. Expenditures are also broken down by level of education and

BEST COPY AVAILABLE

according to the purposes of expenditure recognized in Form UOC2--expenditures for administration, emoluments of teaching staff and other staff, books, scholarships, welfare services, and so forth.

The INES Expenditure Statistics and Indicators

The INES project collected its first statistics in 1991 (pertaining to the academic or financial year 1988) and published its already-mentioned first indicators report, *Education at a Glance*, in the fall of 1992.[5] The second edition, containing figures for 1991, was published in 1993; and the third, with figures for 1992, was released in April 1995. Data pertaining to 1993 were collected during the first half of 1995. The published indicator volumes are referred to henceforth as EAG1, EAG2, and EAG3, respectively.

The EAG2 statistics were the latest available when information was gathered for this study (1992 through 1994). Consequently, the EAG2 statistics and indicators, together with the associated INES data collection instrument and instructions, are taken as the baseline for the comparability assessment. However, we also discuss, where relevant, the statistics prepared earlier for EAG1 and those prepared later for EAG3.

The INES finance data collection instrument for EAG2 consisted of two tables (reproduced in Annex B). The first provided for a breakdown of education expenditures by source of funds (central, regional, and local governments, households, and other private sources) and by level of education. The second called for disaggregation of spending by "nature" of expenditures (current, capital, debt service) and by resource category (compensation of teaching personnel, compensation of nonteaching personnel, and nonpersonnel expenditures), with full cross-classification by level of education. The levels of education for which separate expenditure figures were requested were preprimary, primary, secondary, and tertiary, plus a residual category, "not allocated by level." Countries were asked to adhere to the ISCED definitions of levels (see below).

Definitions and instructions for the EAG2 finance data collection tables were included, along with definitions of nonfinancial data categories, in a set of guidelines distributed to the national data providers (OECD/INES, 1993). Although significantly more detailed than the instructions for Form UOC2, these specifications proved to be incomplete, insufficiently detailed, or nonoperational in many respects (as discussed in later chapters).

Using data obtained with the aforesaid instrument, INES prepared the following eight comparative indicators of education expenditures for EAG2 (most of which are disaggregated by level of education):[6]

1. Education expenditure relative to GDP,
2. Public expenditure for education relative to total public expenditure for all purposes,
3. The percentage distribution of expenditures by level of education,
4. Education expenditures by initial source of funds,
5. Education expenditures by nature and resource category,
6. Education expenditure per full-time-equivalent (FTE) student, in equivalent U.S. dollars,
7. Education expenditure per FTE student relative to GDP per capita,
8. Relative expenditure per FTE student at different levels of education.

Subsequent Developments

In late 1993, the INES project introduced a restructured, expanded finance data collection instrument, which was used in 1994 to collect expenditure statistics for EAG3. The new instrument strongly reflected the interim findings of this study (not surprisingly, as it was developed by the author of this report) and was designed specifically to help alleviate various comparability problems. Among the features that distinguish the new instrument from its predecessors are that it differentiates sharply between the expenditure and revenue sides of education accounts, distinguishes between expenditures for public and private institutions, separates expenditures for educational services from subsidies for student living expenses, and provides for explicit reporting of intergovernmental and public-to-private financial flows. The accompanying instructions, in addition to being more comprehensive and detailed than any provided previously, make important changes in the definitions of certain expenditure categories. Reflecting these additions and modifications, EAG3 presented a reorganized set of expenditure indicators, more extensive and detailed in certain respects than the set of EAG2 indicators described above. The details are discussed later in connection with the pertinent comparability issues. The EAG3 data collection forms are reproduced in Annex C.

In late 1994, agreement was reached among OECD, UNESCO, and Eurostat that the INES EAG3 finance data collection forms and instructions would be adopted, after certain relatively minor modifications, as the new joint instrument for collecting education expenditure statistics from the OECD countries. Thus, the new instrument, designated the UOE finance questionnaire (UNESCO, OECD, Eurostat) supersedes both the earlier INES finance data collection forms and Form UOC2. It was used in 1995 to collect statistics for all three international agencies.[7]

The International Standard Classification of Education (ISCED)

As the foregoing review of statistics and indicators makes clear, classification of expenditures by level of education is a prerequisite for international comparisons. Although figures on aggregate national spending for all levels of education combined are of interest for some purposes, most potential applications of comparative expenditure statistics, whether for policy making or research, require less aggregative information. For example, the recurring debate among American policymakers over whether the United States spends too much or too little compared with other countries focuses on expenditures for K-12 education, not for all levels of education combined.

The currently dominant system for classifying educational activities by level is ISCED, the International Standard Classification of Education, developed under UNESCO auspices during the 1970s. The taxonomy is laid out and the individual levels are defined in the ISCED manual (UNESCO, 1976).[8] The prescribed ISCED levels are as follows (the terms in parentheses are those most commonly used today):

ISCED 0.	Education preceding the first level (preprimary or early childhood education),
ISCED 1.	Education at the first level (primary education),
ISCED 2.	Education at the second level, first stage (lower-secondary education),
ISCED 3.	Education at the second level, second stage (upper-secondary education),
ISCED 5.	Education at the third level, first stage, of the type that leads to an award not equivalent to a first university degree (non-university tertiary education),
ISCED 6.	Education at the third level, first stage, of the type that leads to a first university degree or equivalent (university-level undergraduate education),
ISCED 7.	Education at the third level, second stage, of the type that leads to a postgraduate university degree or equivalent (university-level postgraduate education),
ISCED 9.	Education not definable (or not allocated) by level.

This taxonomy provided the foundation for the expenditure (and other) statistics collected by INES for EAG2. It was retained, but with some definitional changes and clarifications, for EAG3. It remains the basis, albeit with further modifications, for the initial round of data collection using the new UOE instrument. Interestingly, even though the ISCED taxonomy was created under UNESCO auspices, it is not reflected fully in the UOC Joint Questionnaire. Rather, the UOC2 form incorporates a somewhat different taxonomy that antedates ISCED.[9]

During the last few years, ISCED has come under attack. Certain of its features--most notably the looseness or flexibility of the ISCED definitions of levels of education--have been cited as important sources of comparability problems. The international agencies concerned, OECD, UNESCO, and Eurostat, have agreed that ISCED must be improved. As this is written, work on revisions is underway, but debate continues as to the appropriate nature and scope of the needed changes. Some of the issues in this debate are taken up in the later discussion of problems of classifying education expenditures by level.

Scope of the Inquiry

The international expenditure comparability study can be described succinctly as an inquiry into the nature, extent, causes, implications, and possible solutions of problems in comparing education expenditures across countries, based on case studies of the education finance statistics of ten selected OECD countries. The main elements that define the study's scope are (1) the expenditure statistics to be investigated, (2) the countries to be examined, and (3) the range of substantive issues.

Expenditure Statistics

The study focuses primarily on the education finance statistics collected by OECD for the Indicators of Education Systems (INES) project and the expenditure indicators based upon them. Specifically, it concentrates on the INES expenditure statistics for financial year 1991, collected in 1993 for use in preparing the second edition of OECD's indicator report, *Education at a Glance* (EAG2). Where appropriate, it also considers the statistics collected earlier for EAG1, changes made in the INES data collection process for EAG3, and certain design features of the new UNESCO-OECD-Eurostat (UOE) finance data collection instrument introduced in 1995. However, because the study's main information-gathering effort, the set of individual-country field visits, took place between December 1992 and October 1993, this report provides only very limited information on statistical developments in the individual countries subsequent to the preparation of statistics for EAG2.

In addition to dealing with the INES statistics, the study covers selected issues concerning the finance statistics obtained from the UOC Joint Questionnaire, Form UOC2. In general, the UOC2 statistics were not examined in the same detail as the INES statistics. In several cases, however, countries derived their INES/EAG2 statistics directly from figures prepared earlier for Form UOC2, meaning that the two sets of statistics were effectively merged. Depending on the individual country, the UOC2 statistics in question may pertain to financial year 1990, 1991, or 1992.

The study covers all the breakdowns of expenditure figures mentioned in the previous background discussion. This means that it deals with not only the comparability of statistics on aggregate national spending for education but also the comparability of the various disaggregated expenditure statistics provided by the INES and UOC2 data collection systems. Specifically, the study evaluates the comparability of breakdowns of spending by level of education, type of service provider (public or private), use of funds (that is, nature and resource category), and source of funds. Further, in recognition of the importance policymakers and other data users place on comparisons of expenditure per student, the scope of the inquiry was extended to encompass the enrollment figures used in calculating the per-student amounts.

Countries

Recognizing that it would have been infeasible within reasonable time and resource constraints to examine the statistics of all the OECD countries (there were 24 in 1992, with somewhat fewer participating in the INES project), NCES specified at the outset that the study should cover the United States and 8 to 10 other selected countries. The main considerations in choosing the countries were population (it was considered important to include the larger countries), representation of different geographical areas, inclusion of countries with different types of education finance systems, and, of course, willingness to participate. In the end, case studies were conducted of the following ten countries:

Australia
Austria[10]
Canada
France
Germany
Netherlands
Spain
Sweden
United Kingdom
United States

It had been our intention initially to include Japan in the study, and possibly to add an Asian country not a member of OECD, but neither proved feasible. However, as a by-product of the collaboration with OECD and involvement with other aspects of the INES project, we did acquire some information about the statistics of countries not listed above (including Japan). Such information is cited from time to time in connection with particular comparability issues.

Although the study's findings apply mainly to the ten selected countries and are not, strictly speaking, generalizable to the OECD countries as a whole, it appears that they reflect nearly the full range of important comparability issues and problems. Evidence to that effect has been gleaned from the proceedings of the INES Technical Group, which represents the national data providers responsible for preparing the expenditure statistics. Additional evidence comes from national responses to various INES inquiries and surveys, some specifically focused on problems of comparing expenditures, and from the reactions of national representatives to presentations of the study's interim findings. An inquiry covering the remaining OECD countries would probably unearth some additional problems of comparability not covered here, but it is unlikely that the study's general findings would be substantially altered.

Substantive Issues

The range of substantive issues addressed by this study is implicit in the statement of research objectives. We sought to determine what kinds of comparability problems exist, how widespread and severe they are, what causes them, and how they might be corrected. But questions of such generality cannot be answered directly. Instead, we formulated more detailed and concrete research questions, the answers to which could be pieced together to resolve the broader issues.

The study involved a detailed review of the national expenditure statistics of each country, not just the statistics prepared for OECD and UNESCO. We attempted to learn how each country collects and assembles its own internal education finance data; how the country defines its expenditure categories; and what the country includes in, and excludes from, its education expenditure figures. In addition, we tried to obtain enough background information about each country's education and education finance systems to interpret the financial information correctly. Only then, after having obtained some basic understanding of the country's own statistics, did we inquire into how the country has interpreted the INES definitions and translated its own data categories into the often significantly different categories needed to construct international expenditure indicators.

BEST COPY AVAILABLE

Consonant with the above, the study's research questions fell into three categories, concerning, respectively, national education and education finance systems, national expenditure statistics, and expenditure statistics prepared for submission to the international agencies. The following list presents them in summary form rather than in full detail, but this should suffice to convey the range of the study's substantive concerns:[11]

National Education and Education Finance Systems. These questions were intended to elicit sufficient background information to interpret and evaluate each country's expenditure statistics:

- How does the country organize its education system by level, sector, and type of institution and program?
- What roles do central, regional, and local governments, businesses, and other private organizations play in providing educational services?
- Which public and private entities are responsible for generating education funds? How do these responsibilities vary by level of education and function?
- Which public and private entities are responsible for determining how education funds are allocated and used?
- What are the principal mechanisms for financing the country's educational institutions, and how do funds and resources flow among the various participants in each country's system?

National Statistical Systems. Questions of the following kinds (spelled out, in practice, in much greater detail) cover the scope, content, and organization of each country's internal education finance statistics:

- What agencies are responsible for collecting national statistics on education expenditures?
- What are the principal data sources and data collection methods?

- To what extent do the country's statistics cover the various levels, sectors, and forms of education?

- To what extent do they cover public and private institutions and public and private sources of funds?

- To what extent do they cover particular functions, services, and cost categories (e.g., administrative and other support functions, such ancillary services as student housing and meals, university research, fringe benefits for teachers and other staff)?

- According to what definitions does the country report expenditures by source of funds?

- To what extent, and according to what definitions, does the country disaggregate expenditures by nature and resource category?

- What methods does the country use to quantify certain difficult-to-measure components of education cost (e.g., pension contributions, capital outlay)?

- How does the country quantify full-time-equivalent enrollment at each level of education?

International Data Submissions. The questions in this group focus on the country's INES and UOC data submissions and the process of translating expenditure statistics from national to international categories:

- What agencies are responsible and what procedures do they use for preparing the country's INES and UOC submissions?

- How broad a definition of education underlies the country's international education data submissions? Specifically, how does the country deal with such border areas as preprimary education, adult education, apprenticeship, and other labor training?

- How does the country assign expenditures to ISCED levels for purposes of international reporting?

- To what extent do the country's international data submissions cover such often-problematic expenditure items as education expenditures of noneducation agencies; private outlays and outlays of private institutions; spending for administrative, support, and ancillary functions; expenditures for university research, hospitals, and auxiliary enterprises; scholarships and subsidies for student living expenses; and pensions and other fringe benefits?

- How has the country interpreted and applied the international definitions of sources of education funds?
- How has the country differentiated between current and capital outlays, personnel and nonpersonnel costs, and teaching and nonteaching personnel?
- To what extent are the country's international statistics based on estimates or allocations, and what estimation methods have been used?

Finally, in addition to addressing the standard questions applicable to all countries, the study also covered country-specific issues brought to light by the field work. These included, for example, the special problems of international reporting faced by countries with decentralized education systems and by countries in the process of reforming or reorganizing their education or education finance systems.

Design and Methodology

The two principal components of the expenditure comparability study were (1) an information-gathering effort centered around a set of individual-country case studies and (2) the subsequent analysis and synthesis of case study findings. These were preceded by research design and planning activities and followed, of course, by the preparation of this report. In addition, many aspects of the study were affected by interaction with the parallel INES effort to develop improved international expenditure indicators.

Information Gathering: The Country Case Studies

The principal distinguishing feature of the information-gathering effort was its interactive style. It had become evident even before work began that indirect or arms-length methods, such as relying on mail questionnaires, would not suffice. The complexity of the subject matter, our initial unfamiliarity with the details of many national systems, and the considerable uncertainties about the range of comparability problems all pointed to the need for extensive dialogue with experts and officials of the participating countries. Accordingly, we conducted the inquiry as a series of individual-country case studies, each involving a field visit to the country (sometimes more than one visit) and various follow-up activities.

The case studies were preceded by two preparatory tasks--a conceptual analysis and classification of anticipated comparability problems and development of a general comparability questionnaire (in effect, a case study protocol) to guide the conversations in the countries. The latter covered the types of questions listed above, but in considerably more detail. Typically, each case study involved the following steps: (1) preliminary orientation and data collection, (2) the field visit, (3) preparation of preliminary findings, (4) follow-up and revision. Each step is described below.

Orientation and Initial Data Collection. Prior to each field visit, we acquired both descriptive and statistical information concerning the country in question. Some of the statistical material--copies of UOC and INES submissions--came from OECD, and some background information came from earlier international studies, but most was provided by the country itself.[12] The types and amounts of material obtained varied by country, but generally the information included descriptions of the country's educational structure, its education finance system, and (sometimes) its financial accounting categories, plus examples of national statistical reports. We used this material not only for general orientation but also to formulate country-specific questions to supplement the general questions in the aforementioned comparability questionnaire.

Field Visits. The field visit to each country consisted of meetings with personnel of the national education ministry (or ministries), the national statistics agency, and, in some cases, other national agencies (and occasionally subnational or nongovernmental agencies) involved with education finance. University researchers and other outside experts were consulted in a few instances. The persons visited had been given copies of the comparability questionnaire in advance (plus additional country-specific questions in some cases), and so were generally familiar with the topics to be explored.

As a rule, we proceeded by inquiring first about structures and finance systems (often level by level or sector by sector), then about the corresponding internal expenditure statistics, and finally about the international data submissions. However, the sequence varied, depending on the country. In each instance, however, we focused at some point on the details of the country's INES and UOC submissions--what the country had included, what it had omitted, how it had classified expenditures, and how it had quantified problematic expenditure items. By the end of the visit we were usually able to review with our hosts tentative findings about apparent comparability problems. The typical field visit involved intensive discussions over a period of four to six days.

Preliminary Findings. Following each field visit, we prepared a report on preliminary findings concerning confirmed or suspected comparability problems. These reports, organized by issue and sector or level of education, typically covered anywhere from 30 to 60 separate issues, each concerning a perceived problem or area of uncertainty concerning the country's statistics. As examples, such items as the following were noted in the preliminary findings documents:

- Omission of fees paid by households to preprimary schools
- Nonreporting or incomplete reporting of education-related administrative expenditures of municipal governments
- Exclusion of education outlays of health and agriculture ministries
- Omission of the cost of the work-based portions of apprenticeship programs

- Unwarranted inclusion of the cost of continuing training of regular employees of enterprises
- Exclusion of certain forms of funding for university research
- Uncertainty as to whether expenditures for the programs of certain vocational-technical institutions should be classified as ISCED 3 or ISCED 5
- Failure to allocate costs of special education, adult education, and ancillary services to particular levels of education
- Double counting due to inclusion of scholarships and other transfer payments in total expenditures
- Misclassification of compensation of certain administrative and support staff as expenditure for teaching personnel
- Failure to distinguish between full-time and part-time students in reporting full-time-equivalent enrollment

Where appropriate, these preliminary findings were accompanied by observations about specific steps the country might take to correct perceived comparability problems or, almost as often, steps that the international agencies could take to eliminate gaps and ambiguities in the guidelines for international reporting.

Follow-up and Revision. After developing the preliminary findings, we engaged in a variety of activities aimed at confirming findings, correcting errors, filling in missing details, and pursuing topics that had not been addressed previously. The reports containing the initial findings were sent to the countries for verification and correction. Reviews of our meeting notes and examinations of materials obtained during the field visits often raised new issues and brought out points requiring clarification. In some cases, these reviews led to the preparation of supplemental questions, some of them lengthy and detailed, for the experts we had visited. We also carried on less formal dialogue, by telephone and fax and sometimes in person at OECD meetings, with the country representatives. These follow-up efforts yielded substantial portions of the information used in the subsequent analysis and synthesis phase of the study.

Procedural Variations. Circumstances caused us to follow different procedures in dealing with certain countries. In the case of France, although we conferred directly on several occasions with officials of the national education ministry, we also engaged Prof. François Orivel (Université de Bourgogne) as a consultant. Prof. Orivel, working with various ministry personnel, assembled our basic information on the French education system, the French statistics, and the associated comparability problems. In the cases of Sweden and the United Kingdom, our initial field work was conducted as part of a related but separate comparative study of education finance systems, with a somewhat different scope and focus.[13] Consequently, although we did obtain much of the requisite information from the visits to these two countries, it was necessary to conduct a short follow-up visit in the case of the United Kingdom and to follow up by other means in the case of Sweden. As to the United States, we were already familiar with most aspects of the U.S. education, education finance, and education statistics systems as well as the U.S. international data submissions, so we needed only to consult with the appropriate specialists at NCES to clarify certain points and to fill a relatively small number of information gaps.

Analysis and Synthesis

The analysis and synthesis phase of the study had two principal components. One was the multicountry comparative analysis and synthesis of findings about comparability problems. The other was the quantitative analysis of effects of deviations from comparability on selected expenditure aggregates. Only the former is discussed here. All aspects of the quantitative analysis, including its methodology, are presented in the previously mentioned companion volume (Sherman, 1996).

The multicountry analysis and synthesis was organized topically, in much the same manner as the chapters and sections of this report. For the most part, it consisted of a comparative descriptive analysis, although it also had certain quantitative elements. In general, we have handled each comparability issue or problem by progressing through the following series of steps:

- Laying out the issue and the applicable general principles,
- Summarizing the relevant individual-country findings (sometimes, but not always, one country at a time),
- Deriving more general findings about the nature and extent of the problem--for example, findings about the extent and pattern of variation among countries in the treatment of a particular expenditure category,
- Tracing the sources of the problem, sometimes to ambiguities in the international definitions, sometimes to national statistical practices, and sometimes to underlying structural differences among countries,
- Estimating or illustrating the quantitative effects of the problem on international expenditure comparisons, sometimes by constructing plausible hypothetical examples,
- Identifying the types of remedial actions that might be taken at the individual-country level, such as recategorizing expenditures or filling data gaps,
- Identifying potential remedial actions at the international level, such as modifying the international expenditure categories or making the instructions to data providers more precise.

In addition to the problem-by-problem approach, we have also prepared cross-cutting analyses by level of education and by type of expenditure indicator. Regarding the first, we have attempted to generalize about the comparability of the expenditure statistics pertaining to each individual level and each relevant combination of levels (e.g., combined lower-secondary and upper-secondary and all primary and secondary), taking into account also the distinction between public and private education at each level. With respect to indicators, we have sought to distinguish among the effects of comparability problems on comparisons of total education spending, comparisons of spending per student, and comparisons of the composition of education spending by level of education or by source or use of funds. In a number of cases, the expenditure statistics are usable for some of these types of comparisons but not for others. The results of these cross-cutting assessments are presented in the final chapter.

Interaction with OECD's INES Project

Although collaboration with INES was built into the study from the start, the interaction was both more intensive and different in character from what had initially been anticipated, with consequent major effects on the research. The expected exchanges did occur: On one hand, we learned a great deal about comparability problems and potential solutions from participating in the INES work, and the study benefitted from contacts with the INES staff and access to national participants in the INES project. On the other hand, the study's findings have led to major improvements in the INES expenditure statistics and indicators. What was not foreseen is the degree to which the comparability inquiry would transform the INES expenditure statistics long before the study was completed. One unexpected development was that some of the countries in which we conducted case studies quickly acted to modify their expenditure statistics. Another was that INES pressed ahead rapidly with improvements in its expenditure data collection instrument and indicators (enlisting the author of this report for the task). Instead of proceeding sequentially, the processes of assessment and improvement went forward together.

The significance of these developments for the design and substance of the study is two-fold: First, the study's findings caused the international expenditure statistics to change even while the study was under way; that is, the assessment of comparability altered the comparability of the statistics being assessed. The expenditure statistics collected by INES in

1994 and 1995 were significantly different from--and more advanced than--those of 1992 and 1993. As in quantum physics, observing the phenomenon caused the phenomenon to change. We found ourselves dealing with a moving rather than a stationary target.

Second, the parallel developments in the INES project necessitated a greater emphasis on remedies for comparability problems than had originally been planned. Given the changes taking place, it would no longer have been relevant to focus on options and prospects for improving the expenditure statistics of EAG2. Instead, we have had to take into account, and distinguish carefully among, changes already made at both the national and international levels, further improvements planned or in progress, and options for dealing with the remaining difficulties. The consequent expansion of the scope of the study is reflected in every chapter of this report.

Organization of the Report

The remainder of this report consists of ten chapters. Chapter 2, which follows this introduction, offers an overview of comparability problems; the last chapter (Chapter 11) presents general findings and conclusions; and the other eight chapters (Chapters 3 through 10) deal with specific clusters of comparability issues and problems. The following capsule summaries provide previews of the individual chapters and indicate the logical structure of the report.

Chapter 2. Overview of Comparability Problems. This mainly conceptual chapter examines the meaning of comparability, outlines the different types of expenditure comparability problems, analyzes the generic causes of deviations from comparability, and explores the relationships between types and causes of problems and options for improvement.

BEST COPY AVAILABLE

It provides the framework for the analyses of specific issues, problems, and potential solutions in the following chapters.

Chapter 3. Defining the Boundaries of Education. This chapter examines the major difficulties created for expenditure comparisons by differences in national conceptions of the extent of the education sector. Specifically, it deals with the problems caused by (1) inconsistent definitions of the boundary between preprimary education and noneducational child care, (2) divergent views concerning the proper statistical treatment of spending for apprenticeship programs and other forms of labor training, and (3) disagreements concerning the inclusion in education expenditure figures of outlays for adult, continuing, "out of school," and other "nonregular" education.

Chapter 4. Classification of Expenditures by Level of Education. Consistency in classifying educational activities by level of education is essential for valid expenditure comparisons. This chapter examines a variety of problems concerning categorization by level, including differences among countries in the durations and starting points of preprimary, primary, lower-secondary, and upper-secondary education; inconsistent definitions of the border between secondary and tertiary education; and difficulties in assigning some educational activities to particular levels. It relates these problems to current discussions of how the ISCED taxonomy of levels should be revised.

Chapter 5. The Public and Private Dimensions of Education Finance. Many countries offer only limited statistical coverage--in some cases, no coverage--of (1) expenditures for private educational institutions and (2) the education expenditures of households, firms, and other private entities. Some countries also fail to take into account the education expenditures of public noneducation agencies. This chapter discusses the effects of these lapses on comparisons of expenditure magnitudes and breakdowns of spending by source of funds. It also addresses the related problem of inconsistent national criteria for distinguishing between public and private education.

Chapter 6. Expenditures for Particular Functions, Services, and Cost Categories. In addition to problems stemming from omissions of whole sectors or classes of educational institutions, other problems arise from inconsistent coverage of the costs of particular functions, services, or objects of expenditure. This chapter discusses the subset of such problems that cut across all levels of education or pertain to education below the tertiary level. These problems include (1) uneven coverage of expenditures for administrative and support services, (2) differences in coverage of expenditures for student housing, transportation, meals, and other ancillary services, and (3) inconsistent coverage or inconsistent measurement of expenditures for retirement programs (pensions) and other fringe benefits.

Chapter 7. Special Issues Concerning Expenditures for Tertiary Education. Certain inconsistencies in the expenditure statistics are relevant only, or mainly, to comparisons of spending for tertiary education. This chapter addresses the problems of (1) divergent national views as to which portions of expenditure for research performed at institutions of higher education should be counted as education spending, (2) the inclusion in some countries' figures of expenditures for teaching hospitals, and (3) inconsistent coverage and measurement of financial aid to students--in particular, subsidies for student living expenses.

Chapter 8. Statistics on Uses of Education Funds (Expenditures by Nature and Resource Category). The ability to answer questions about "what money buys" in education depends on consistent classifications of expenditures by nature (current expenditures, capital expenditures, debt service) and by resource category (compensation of teaching and nonteaching staff and spending for nonpersonnel resources). This chapter examines the conceptual and practical problems that thus far have precluded satisfactory comparisons of these aspects of education expenditures.

Chapter 9. Education Expenditures by Source of Funds. Comparisons of the sources of education funds have been hampered by both differences in national accounting practices and shortcomings of the international data collection system. This chapter explores the resulting problems in comparing (1) the shares of education costs borne by the public sector and by households and other private funders and (2) the shares of public expenditure for each level of education accounted for by central, regional, and local governments.

Chapter 10. Enrollment Statistics and Expenditures per Student. The importance of comparisons of expenditure per student makes it necessary to consider the comparability of the enrollment figures provided by different countries. This chapter examines the two main enrollment-related problems affecting the expenditure-per-student calculations: (1) inconsistent methods of quantifying full-time, part-time, and full-time-equivalent enrollment, and (2) mismatches in coverage between the expenditure and enrollment statistics.

Chapter 11. General Findings, Conclusions, and Implications. The final chapter brings together conclusions concerning the comparability of expenditure statistics, the outlook for enhancing comparability, and the implications for policymakers and other data users. The chapter focuses first on the individual comparability problems--their prevalence, severity, and susceptibility to improvement. It then provides cross-cutting summaries of the findings and conclusions pertaining to particular levels of education and to specific types of expenditure comparisons. One section deals specifically with comparisons between the United States and other countries. The chapter closes with a discussion of implications of the study's findings for both the users and the producers of international education finance statistics.

Notes

1. The 1991 edition of *Condition of Education* (NCES, 1991) contained an international comparison of public spending for primary and secondary education. The 1992 edition (NCES, 1992) offered comparisons of public spending for both pre-K to 12 (preprimary to upper-secondary) education and higher education.

2. The acronym UOC stands for **U**NESCO, **O**ECD, and **C**ommunauté Européenne (European Community, or EC). The statistical agency of the EC, Eurostat, received the UOC data but did not, until recently, produce or publish any expenditure comparisons of its own.

3. Although INES had its own survey forms and data collection process, many of the INES expenditure categories were identical or similar to those in Form UOC2. Moreover, in many instances the same individuals or national offices responded to both surveys, often completing the more familiar Form UOC2 first and then extracting or modifying statistical items to fit the INES categories. For these reasons, we characterize the INES data collection as semi-independent rather than fully independent of the UOC data collection.

4. In fact, two different sets of data collection instruments were used by UNESCO. The UOC forms, including the expenditure questionnaire, Form UOC2, were used only to collect statistics from the OECD member countries. Simplified versions of the forms, designated STE/Q (Statistics of Education Questionnaire) were used for the rest of the world.

5. Financial years are identified by the calendar year in which the financial year ends. Therefore, a country asked to report expenditures for financial year 1993 should provide data for a financial year that either coincides with calendar year 1993 or that begins in calendar year 1992 and ends in calendar year 1993.

6. The degree of disaggregation varies by indicator. Indicators 1, 2, 4, and 5 are calculated for primary plus secondary education, tertiary education, and all levels of education combined; indicators 3 and 8 distinguish among preprimary, primary, secondary, and tertiary education; indicators 6 and 7 cover preprimary, primary, secondary, primary plus secondary, and tertiary education and all levels of education combined.

7. The new UOE finance data collection instrument is part of a larger UOE package that also unites the previously separate UOC and INES questionnaires on enrollment, student flows, institutions, and education personnel. A single OECD document (1995b) contains the definitions, explanations, and instructions for the whole set of UOE forms.

8. The 1976 ISCED manual is a volume of almost 400 pages, but the great bulk of the taxonomy concerns the classification of educational offerings by subject area. The best-known part of ISCED--and the only part of interest here--is the taxonomy of levels, which takes up only about one-tenth of the document.

9. The levels of education recognized in the UOC forms differ from the ISCED levels (and hence the levels used by INES) in three important respects: First, the UOC categories are defined in terms of institutions, while the ISCED categories are defined in terms of programs. The two may differ in cases where either (1) a single type of institution offers programs

corresponding to multiple levels (e.g., a school offers both upper-secondary and non-university tertiary education) or (2) a single program is offered by multiple types of institutions (e.g., both universities and separate non-university institutions offer two-year programs leading to credentials not equivalent to the bachelor's degree. Second, the UOC forms include sublevels that do not appear, or are different from those that appear, in ISCED--e.g., a subcategory of tertiary education called distance learning. Third and most important, the UOC forms place special education, adult education, and "other" types of education outside the main hierarchy of levels, while ISCED states that such forms of education should be assigned to the regular levels. The last-mentioned difference accounts for some substantial discrepancies between the expenditure figures reported in the INES and UOC2 forms.

10. The work on Austria was conducted at the request of, and under a separate contract with, the Austrian ministries responsible for primary-secondary and postsecondary education.

11. The research questions are spelled out in full detail in a document prepared by the Expenditure Comparability Study entitled "Survey on International Comparability of Education Finance Data" (27 November 1992). Though not actually used as a survey instrument, this document provided the substantive guidelines for the individual-country case studies.

12. Some examples of especially useful earlier international studies include a European Community report on the education and initial training systems of member countries (Commission of the European Communities, 1990), another European Community publication describing higher education systems (1991), a comparative analysis of public expenditure on higher education produced by a research institute in the Netherlands (Center for Higher Education Policy Studies, 1991), and individual-country reports from the OECD project on Changing Patterns of Finance in Higher Education (various dates).

13. The related study, undertaken by SMB Economic Research, Inc. for the Finance Center of the Consortium for Policy Research in Education (CPRE) was oriented towards comparisons of education finance systems and funding mechanisms, as opposed to comparisons of finance statistics.

Chapter 2

OVERVIEW OF COMPARABILITY PROBLEMS

This overview chapter sets the stage for the detailed assessment of comparability issues and problems in the following issue-oriented chapters of the report (Chapters 3 to 10). It is intended to provide both the conceptual foundation for the subsequent analysis and a reader's guide to the remaining chapters. The chapter begins with a general discussion of the meaning and relevance of comparability. The following section lays out a taxonomy of comparability problems and describes the different concrete forms that each type of problem can take. The next section examines the generic causes of expenditure comparability problems, distinguishing among underlying structural differences, factors associated with national statistical systems, and factors peculiar to the international data collection process. The brief final section outlines potential solutions to comparability problems (again, generically), including actions that can be taken by the international agencies and those that must be taken by the individual countries concerned.

The Meaning and Relevance of Comparability

Basic Definitions

This report contains hundreds of references to comparability problems, deviations from comparability, and comparable and noncomparable statistics. It is important to be explicit at the outset about how these terms are used. Broadly speaking, statistics are said to be internationally comparable when they refer to the same aspects of reality in each of the countries concerned. Comparability, so defined, is attainable to the extent that the different countries concerned base their statistics on uniform concepts, equivalent categories, and consistent operational definitions. (The term "operational definition" encompasses the measurement method.) Statistics will be noncomparable when, and to the extent that, they reflect differences among the countries in concepts, categories, or operational definitions.

Comparable expenditure statistics can be used to answer questions about how specified expenditure magnitudes vary among countries--for instance, to determine how countries vary in expenditure per student, expenditure relative to GDP, or the distribution of expenditure by level of education. When one attempts to use noncomparable expenditure statistics for the same purpose, the answers will be distorted to some degree. The apparent inter-country differences in the level or composition of spending will be partly real and partly definitional. We refer to the definitional components of the reported differences in expenditures as *deviations from comparability*. For example, if country A reports 50 percent higher expenditure for public secondary education than country B, but 30 of the 50 percentage points are accounted for by country A's more expansive definition of secondary education, there is a 25 percent deviation from comparability (specifically, an overstatement of country A's spending relative to country B's) in the statistics on public secondary spending of the two countries.[1]

Each conceptual or definitional discrepancy that plays a role in making expenditure statistics inconsistent among countries is referred to in this report as a *comparability problem*. In other words, we speak of comparability problems as the causes, and noncomparability of expenditure statistics, or deviations from comparability, as the result. As will be explained in detail below, the main general types of comparability problems affecting comparisons of education spending across countries are differences in the scope or coverage of expenditure statistics, differences in the categorization of expenditures, and differences in the methods used to measure elements of spending.

Multiple comparability problems may affect the comparability of a given expenditure statistic. To illustrate, two countries' figures on expenditures for preprimary education may be noncomparable because (1) one country defines an earlier starting age for preprimary education than the other country, (2) one country's figures take into account both public and private spending for preprimary education, while the other's include only public outlays, and (3) one country omits, but the other includes, the cost of transporting preprimary pupils to and from school. In this example, there are three distinct differences in definition or scope, each of which constitutes a separate comparability problem. The effects of the individual comparability problems on a given expenditure statistic may be mutually reinforcing or offsetting. Moreover, they may be mutually reinforcing for some countries and offsetting for other countries, or reinforcing in one time period and offsetting in another. Consequently, there is no one-to-one correspondence between the presence of a particular comparability problem and the degree to which, or even the direction in which, the statistic in question deviates from comparability.

Comparability with Reference to Particular Countries

Expenditure statistics often are comparable among some countries but not comparable (or less comparable) among others. A frequently encountered situation is that there are two or three possible definitions of an expenditure category, or two or three different methods of measuring a component of spending, each of which is adhered to by a different group of countries. For example, one group of OECD countries measures the cost of teacher pensions in terms of current contributions to pension funds, while another (smaller) group measures it in terms of the pension payments flowing to teachers who have already retired. In such cases, there is a problem of comparability between, but not necessarily within, the different groups of countries. In other instances, there are finer gradations of definition. For example, one country's statistics may cover private education expenditures comprehensively; another's may exclude them entirely; but still others may include the spending of some types of private entities but not the spending of other types. In such cases, the degree of deviation from comparability depends on which specific pair of countries is to be compared.

Certain important comparability problems involve deviations from prevailing international practice by only a few countries. For instance, most OECD countries do not consider the cost of operating university-affiliated teaching hospitals as part of spending for higher education, but two or three countries do include such costs. Some such problems pertain directly only to countries with special institutional arrangements. For instance, one serious obstacle to an international comparison of spending for upper-secondary education, the omission of employers' expenditures for training apprentices, mainly affects the expenditure statistics of the relatively few countries with large apprenticeship programs of the dual-system type.[2] Nevertheless, such a problem can be important quantitatively for the limited number of countries concerned, and hence for comparisons between these countries and all others. To be precise, statements about the incidence and importance of comparability problems must refer to the specific countries or groups of countries affected.

Relative and Absolute Comparability Standards

In principle, the comparability of expenditure statistics could be assessed either in purely relative terms or with reference to specified international standards of correct reporting. The relative approach entails comparing statistics among countries and identifying significant conceptual, definitional, or measurement differences, but without necessarily judging that one of the conflicting concepts, definitions, or methods is correct while the other is wrong. From this relative perspective, one can speak of problems of comparability between specified countries or groups of countries but cannot point to the "deviant" statistics of one country or group as the source of the comparison problem.

The alternative is to assess each country's statistics against agreed-upon norms. Such an assessment is possible, of course, only in cases where sufficiently clear, specific, and detailed international guidelines for reporting expenditures have been established. In practice, the standards would have to be those promulgated by the international data collection agencies--OECD, UNESCO, or perhaps Eurostat--as there are no other authoritative sources from which such norms might emanate. In cases where suitable standards have been developed, a country's statistics qualify as comparable to the extent that they reflect the specified international definitions and instructions, and as noncomparable insofar as they deviate from them. One can say in such cases not only that country A's and country B's expenditure figures are noncomparable but also that country A's statistics are correct, while country B's are the cause of the comparability problem. Note that in these situations "comparable" takes on the meaning "consistent with international statistical standards."

Of necessity, the assessment of comparability in this report reflects an amalgam of the relative and absolute (standards-based) approaches. During the main period covered by this study, 1992-93, international standards for expenditure statistics were incompletely and unevenly developed. Although the OECD INES project had made some progress toward elaborating and improving the sketchy definitions of the earlier UOC joint questionnaire, the guidelines available to data providers were still ambiguous or incomplete in numerous respects. Consequently, the option of evaluating countries' data submissions in light of international standards was available in some instances but not in others.

As an example of an area where standards existed, INES had made clear that countries were supposed to report funds for education derived from both public and private sources.

Consequently, one could say unequivocally, upon finding that some countries had reported both public and private spending while others had reported public spending only, that the latter were the ones that had deviated from comparability.

But in many other instances the INES guidelines of 1992-93 were incomplete or missing. As examples, there were no specific instructions about whether or how to report expenditures for such ancillary student services as lodging and meals, how to draw the boundary between education and labor training, or whether to count student loans as a form of education spending. The instructions concerning such items as transfer payments and subsidies, research costs, and staff pensions were vague and subject to conflicting interpretations. In these instances, a relative approach to assessing comparability was the only option. We could document noncomparability--that is, inconsistency--between countries but could not declare one country's approach correct and another's flawed.

OECD's definitions and instructions to data providers developed rapidly during the course of this study, and international standards were established where none had existed earlier. As already mentioned, INES introduced early in 1994 (in time for the EAG3 data collection), a completely redesigned finance data collection instrument, accompanied by much more comprehensive and detailed definitions and instructions than any previously available. The new instrument was refined further in 1995. Although it would now be possible to apply the 1994 or 1995 definitions retrospectively for the purpose of evaluating the statistics prepared for EAG2, to do so would be to indulge in a kind of circular argument. In the interest of avoiding both circularity and anachronism, we have adopted a compromise approach: We discuss the international comparability of the EAG2 expenditure statistics mainly in terms of the definitions and instructions in effect when the EAG2 data were collected; however, because it would be senseless to ignore subsequent developments, we also comment on subsequent conceptual and definitional changes and their implications for each comparability problem.

Comparability and Validity

Comparability and validity are closely related but not equivalent concepts. Statistics have to be comparable to be valid, but comparability alone does not guarantee validity. The validity of a set of international-comparative statistics depends not only on whether the statistics provided by different countries are mutually consistent but also on the correspondence between the statistics and the underlying theoretical constructs. The appropriate constructs depend, in turn, on the purpose of the comparison, or on the questions that the statistics are expected to help answer. Suppose, for example, that the objective were to compare countries with respect to the percentage of GDP devoted to education, but that all countries submitted statistics covering only education funds derived from public sources. These statistics, though internationally consistent, would not be valid for the stated purpose, because they would be based on a too-narrow definition of education spending.

In practice, the distinction between comparability and validity often is blurred, mainly because international statistics are collected for general or multiple purposes, not to answer specific questions identified in advance. For example, the aforesaid statistics limited to funds from public sources, though not usable for comparing total national resources devoted to education, would be useful for comparing public-sector roles in education finance. It does not follow, however, that any set of internationally consistent expenditure statistics is as acceptable as any other. Some have broader applicability than others, some adhere more closely than others to established economic or accounting concepts, and some are more suitable than others for addressing major policy or research issues. Accordingly, we have not construed comparability narrowly for purposes of this inquiry but instead have broadened the concept to embrace criteria that, strictly speaking, are criteria of validity. In other words, we do not ignore important definitional or measurement shortcomings simply because the errors are made consistently by all or most countries.

Comparability and Accuracy

Concerns about comparability are not the same as, and should not be confused with, concerns about the accuracy of the expenditure statistics submitted to international agencies. Even perfectly accurate statistics based on a country's own definitions need not be comparable with the statistics (even if also perfectly accurate) of other countries. Conversely, statistics could be comparable across countries--that is, defined consistently and measured compatibly--yet measured with substantial error. An assessment of the accuracy of the statistics submitted to international agencies would require a more detailed, painstaking type of investigation, perhaps amounting to a financial audit, of each country's original, internal data sources and data collection and data compilation methods. Such an inquiry is not within the purview of this study.

Nevertheless, certain considerations of accuracy do impinge on the assessment of comparability. It is hard to separate accuracy and comparability in cases where countries must rely on estimates, either to fill data gaps or to disaggregate expenditures. For example, because the United States collects no separate statistics on expenditures for preprimary, primary, and secondary education, it has had to apportion aggregate spending for all three levels combined among the individual levels on the basis of data on student enrollments and numbers and salaries of teachers. Whether the resulting figures are comparable to those of countries that do have separate statistics for each level hinges on the accuracy of the estimation method. Likewise, in the relatively few cases where countries have relied on sample surveys to estimate elements of education expenditure (for example, private firms' outlays for dual-system apprenticeship in Germany), the legitimacy of comparing the resulting estimates with the more conventional expenditure statistics of other countries depends on the soundness and accuracy of the estimation procedure.

Comparability as a Matter of Degree

As is evident from the foregoing remarks, comparability is always a matter of degree. It is rarely meaningful to ask in yes-or-no form whether particular expenditure statistics or the statistics of particular countries are internationally comparable. Perfect comparability is unattainable. Deviations from comparability are bound to occur between countries that have even moderately different education, education finance, or education statistics systems (or, for that matter, even among the states or provinces of a single country with a federal system of government). Fortunately, perfect comparability is not required for international statistics to be useful. What we need to know in practice is whether the statistics of different countries are sufficiently compatible that comparisons will be informative--and not misleading--for policymakers and other users.

One cannot cite specific numerical thresholds of tolerable deviations from comparability. For one thing, the acceptable degree of noncomparability depends on the intended application of the international statistics. For instance, if the objective were merely to rank countries according to aggregate education spending (per student, or as a percentage of GDP) or to sort countries into high-spending and low-spending groups, relatively large deviations from comparability could be tolerated. But if the statistics were to be used to study inter-country differentials in spending, to examine the composition of education expenditures, or, especially, to analyze the relationships between spending and such other variables as staffing patterns or educational outcomes, then a much higher degree of comparability would be required.

In addition, the acceptable degree of deviation from comparability depends strongly on the degree of inter-country variation in the statistic in question. One cannot simply declare that international statistics are acceptable if they do not deviate from comparability by more than a stipulated percentage. Suppose, for example, that definitional differences resulted in errors of plus or minus 10 percent in comparing expenditure per student among countries. Such errors might be deemed relatively inconsequential if expenditure per student varied among the countries being compared by a factor of 5 or 10, as it would, for example, if the comparison covered both highly developed European countries and the less-developed countries of Asia and Africa. One could still use the statistics successfully for such exercises as grouping countries into expenditure-per-student quintiles or correlating spending per student with per capita GDP. But deviations of plus or minus 10 percent would be of great concern if expenditure per student varied only within a relatively narrow band, say between 80 and 120 percent of the international average. In the latter situation, the comparison errors would be similar in magnitude to the true inter-country differences in per-student spending; hence they could easily lead to false inferences about how countries compare, and even in how countries rank, with respect to that expenditure indicator. In other words, the relevant criterion for judging whether comparability is "good enough" is not the degree of deviation from comparability per se but rather the deviation from comparability relative to the degree of inter-country variation in the same statistic.

Of course, there are situations in which statistics are so egregiously noncomparable that one can say flatly that comparisons based upon them are invalid. Instances are cited in later chapters in which a single definitional discrepancy results in the omission of a large fraction--one-fourth or even one-half--of a country's total spending for a particular level or sector of education. We do not hesitate to say in such cases that comparisons based on the statistics would be so misleading as to be useless for policy or analytical purposes. More often, however, whether imperfectly comparable statistics are good enough to use is a judgment that must be made by the would-be user--analyst, policymaker, journalist, or whatever--taking into account (one would hope) the available information on the nature, prevalence, and severity of the comparability problems.

Types of Comparability Problems

The expenditure comparability problems examined in this report are of three main types: (1) *problems of scope or coverage*, which occur when countries differ with respect to which expenditure items are included in, or excluded from, statistics on education spending; (2) *problems of categorization*, which arise when different countries place the same or equivalent items in different expenditure categories; and (3) *problems of measurement*, which result from the use by different countries of incompatible methods to quantify the amount spent within a particular expenditure category. This section describes the three classes of problems and explains the different forms that each type can take.

Problems of Scope or Coverage

A problem of noncomparable scope or coverage arises whenever one country's expenditure statistics exclude items of expenditure that another country's statistics include. Or, if we think of comparability with respect to an international standard (say, the standard implicit in OECD's 1994 definitions), we can say that a problem of noncomparable coverage exists when the expenditure statistics of some countries either exclude items that should be included or include items that should be excluded according to the standard. For example, if the international standard stipulates that expenditures for tertiary education should include research expenditures but exclude expenditures for university hospitals, a country's statistics on tertiary spending would be deemed noncomparable to the extent that they either omitted research outlays or included hospital costs. It has proven useful to group problems of inconsistent coverage into three subcategories, as follows:

Inconsistent Definitions of the Boundaries of Education. Some of the more important departures from comparability of education statistics (not only expenditure statistics but also statistics on enrollment and staffing) stem from divergent national definitions of the boundaries of the education sector. The education statistics of countries with broad definitions reflect activities, programs, and institutions that the statistics of countries with narrower definitions exclude. As a result, the expenditure figures of the former countries are overstated relative to those of the latter. Disagreements over what is and what is not "educational" generally have little to do with the universally recognized core activities of education, such as primary and secondary schooling; rather, they concern activities that border other economic sectors and institutions. For example, one country may consider a program of occupational training for unemployed youth to be a component of upper-secondary education, while another classifies an equivalent program as "noneducational" labor training. The first country will then report higher spending for upper-secondary schooling than the second country (other things being equal), even though the only difference between the countries is definitional rather than real. Other major boundary issues of similar character concern where "noneducational" organized child care ends and preprimary education begins; whether apprenticeship programs and other forms of training in the work place should be considered part of education; and which elements of adult, continuing, informal, and other types of so-called nonregular education should be reflected in education expenditure statistics. These boundary issues and their implications for comparability are examined in detail in Chapter 3.

Inconsistent Coverage of Institutions and Funding Sources. A second set of deviations from comparability results from incomplete or inconsistent coverage of particular classes of institutions or particular sources of education funds. The main such problems concern the private aspects of education finance. Some countries report private funding comprehensively; some report only the private funds that flow to public institutions; and some omit all private funds. This nonuniformity not only leads to inaccurate comparisons of total national spending for the affected levels and types of education but also forces the elimination of some countries from certain international comparisons. For instance, a country whose preprimary schools depend substantially on tuition fees paid by families but that collects data only on public funding of preprimary education obviously cannot be included in a comparison of spending per preprimary student. Another problem of incomplete coverage--usually less serious--arises out of the failure of some countries to take full account of the education outlays of public agencies other than the educational authorities, such as health, agriculture, and employment ministries and general-purpose regional and local governments. The implications of these problems are examined in Chapter 5.

Inconsistent Coverage of Particular Functions, Services, or Items of Expenditure. A third type of inclusion/exclusion problem arises out of variations among countries in the degree to which outlays for particular educational functions or services, or expenditures in particular cost categories, are reflected in expenditure statistics. Although such basic elements of education spending as teachers' salaries and outlays for instructional materials are almost always captured in national statistics, the same cannot be said of spending for certain ancillary and support functions. Some countries' statistics provide full coverage of spending for student lodging, meals, transportation, health services, and the like, while others' provide only partial coverage or omit some of these categories entirely. Some countries cover administrative

BEST COPY AVAILABLE

expenses, outlays for building maintenance, and other support costs much more comprehensively than others, with the degree of coverage often depending on what type of public agency bears responsibility for the functions in question (see comments on causes of comparability problems, below).

Several of the main problems under this heading pertain specifically to tertiary education. Some countries cover expenditures for both the teaching and the research functions of institutions of higher education comprehensively, while others deliberately exclude expenditures for separately funded or separately budgeted research. The result is to exaggerate the outlays of the former countries relative to those of the latter. Expenditure for university hospitals is another problem category, excluded from finance statistics by most countries but included by a few. Countries also differ sharply in how they treat subsidies for student living expenses: Some include them; others exclude them; and some include certain forms of subsidies but not others.

An important problem affecting all levels and sectors of education concerns the nonsalary components of the compensation of teachers and other education personnel. The largest element of nonsalary compensation is spending for retirement programs (pensions). Some countries report the full costs of retirement programs, while others omit such costs or cover them incompletely. Those that do include such costs measure them inconsistently (a problem discussed separately below.) Apart from pensions, some countries include the costs of health care and other social insurance (disability insurance, unemployment compensation, etc.) in education expenditures, while others exclude some or all of these items, usually because they are financed through general national health care or social security systems, and hence are not the responsibility of the education authorities. These and other problems concerning specific expenditure categories are examined in Chapters 6 and 7.

Problems of Categorization

A problem of inconsistent categorization arises whenever different countries assign the same, or equivalent, components of education spending to different expenditure categories. Or, if we think in terms of international statistical standards, such a problem occurs whenever a country assigns an educational activity or an expenditure item to a different category than the standard prescribes. For example, if one country classifies vocational-technical programs serving 16 to 21 year-olds as part of upper-secondary education, while another considers similar programs part of non-university tertiary (ISCED 5) education, inter-country comparisons of spending for both secondary and tertiary education will be distorted. Miscategorization can occur with respect to each of the several dimensions along which education expenditures are classified, as indicated below:

Categorization by Level. Problems of inconsistent categorization by level reflect the varying structures of national education systems. A major source of difficulty is that the definitions of levels of education--preprimary, primary, lower-secondary, upper-secondary, tertiary--are not internationally standardized. Countries attach these labels to programs of widely varying durations and starting ages. Some countries' actual education structures do not correspond to the sequence of levels recognized in the ISCED taxonomy. The consequence is that different countries' statistics supposedly pertaining to a given level of education, say, upper-secondary, do not necessary pertain to educationally equivalent sets of education activities. The analysis of these problems in Chapter 4 shows that differences in national definitions of levels are serious enough to rule out entirely certain comparisons of spending for particular levels of education.

Categorization by Nature and Resource Category. Following INES terminology, "nature" refers to the distinctions among current expenditures, capital expenditures, and debt service. Resource categories are the different types of personnel (teachers, other professionals, support staff) and other goods and services purchased by educational institutions. The classification of expenditure by nature is reasonably clear in most instances but obscured in a few countries by the methods used to finance capital outlay. However, both the distinction between personnel and nonpersonnel outlays and the further classification of personnel outlays into expenditures for teaching and nonteaching personnel are seriously problematic--so much so that it is questionable whether any such statistics are usable. Breakdowns by resource category more detailed than those just mentioned have been precluded thus far by limitations of the national data collection systems. The problems affecting this relatively undeveloped area of the expenditure statistics are examined in Chapter 8.

Categorization by Source of Funds. This dimension of classification hinges on distinctions between funds from public and private sources and, within the public sphere, among funds from different levels of government. It has not been difficult to classify the funding sources themselves, apart from minor ambiguity as to whether certain funding entities are public or private. The main problem has been to get countries to distinguish consistently between initial and final (before- and after-transfer) expenditures. The issues are mainly conceptual and technical, revolving around such matters as the difference between direct spending and transfers and the distinction between education-specific and general-purpose funding. In addition, certain specialized problems of classification by source arise in connection with scholarships, student loans, and government subsidies. These topics are discussed in Chapter 9.

Problems of Measurement and Estimation

Apart from issues concerning the coverage and classification of education expenditures, countries sometimes use incompatible methods to measure or estimate the magnitudes of particular categories of spending. Probably the most significant such problem concerns measurement of pension costs. The expenditure statistics of a few countries include pension payments to persons already retired, but the statistics of most other countries include pension contributions on behalf of persons currently employed. The two approaches to quantifying pension costs are incompatible in principle and can yield drastically different results. Various technical and practical issues complicate the choice of an appropriate measurement method. The details are discussed in Chapter 6.

Other measurement and estimation problems arise in quantifying capital outlays and payments for debt service (Chapter 8), estimating the costs incurred by employers to train dual-system apprentices (Chapter 3), allocating expenditures by level in cases where disaggregated expenditure data are not available (Chapter 4), and estimating expenditure components that otherwise would have to be omitted from national data submissions because of data gaps (various chapters).

Finally, one important measurement problem does not concern expenditure statistics per se but rather the enrollment statistics used to calculate expenditure per full-time-equivalent (FTE) student. The difficulties include the omission of part-time students from some countries' enrollment figures, incompatible methods of translating part-time students into full-time equivalents, and various mismatches between the coverage of expenditure and enrollment statistics. The resulting inconsistency in the FTE enrollment statistics is especially severe at the tertiary level, to the extent that it invalidates expenditure-per-student comparisons involving certain countries. Although this report generally deals only with expenditure statistics, the effects of inconsistent FTE enrollment figures on expenditure comparisons are too serious to ignore. They are examined in detail in Chapter 10.

Causes of Comparability Problems

The international comparability of expenditure statistics is diminished whenever data providers from different countries fail--for whatever reason--to identify, classify, or quantify education expenditures according to uniform rules and definitions. But although the deleterious effects of comparability problems generally are independent of the problems' causes, the potential remedies depend strongly on why countries have produced noncomparable statistics. For this reason, efforts are made throughout the report not only to examine comparability problems and their implications but also to explain why the problems have occurred. This section reviews the generic causes of noncomparability. Subsequent chapters show how specific causes contribute to particular comparability problems.

The generic causes or sources of expenditure comparability problems can be classified under three broad headings:

1. Structural differences among the education and education finance systems of different countries,
2. Limitations of, and differences among, national statistical systems (defined to include differences in accounting concepts and practices), and
3. Shortcomings of the international data collection system and process.

Often, however, it is not the individual causal factors but rather the interactions among them that are critical. For instance, whether an inter-country difference in, say, the organization of educational levels will translate into noncomparable statistics may depend not only on the taxonomy of levels used by each country's statisticians but also on the applicable guidelines from the international data collection agency. Because of the importance of interaction effects, there is generally no one-to-one correspondence between particular causes and particular comparability problems.

Differences in Education and Education Finance Systems

The comparability problems most deeply rooted in underlying reality are those attributable to structural differences among the countries. Among the relevant structural attributes of the educational system are the manner in which education is organized by level, the mix of programs and institutions operating at each level, and the roles played by public and private service providers. Among the key attributes of the education finance system are the division of financial responsibilities between the public and private sectors, the distribution of public-sector financial roles by level and type of government, and the pattern of financial and resource flows among the various public and private parties.

The classification of educational activities by level underlies all but the most aggregative comparisons of expenditures among countries. Although the ISCED taxonomy (summarized in Chapter 1) supposedly allows countries to describe levels of education in standard terms, the ISCED levels are only loosely defined and fit some countries' systems more closely than others. The seemingly standard level designations--preprimary, primary, secondary, tertiary--often pertain to programs of different durations, serving different age groups, and offering instruction of widely varying scope, content, and quality. The fact that levels are not standardized across countries has been one of the major, most pervasive impediments to the development of internationally comparable expenditure statistics.

Differences in mixes of service providers create a number of comparison problems. It has proven very difficult to compare spending for upper-secondary education between countries that offer mainly school-based programs and countries that rely heavily on apprenticeship or other forms of employer-based training. At the preprimary level, it is hard to compare spending between countries with highly organized national systems of preprimary schools and countries that rely on diverse, decentralized, less formal, often private institutions to serve very young children. At the tertiary level, varying mixes of so-called university and non-university (e.g., technical or occupational) institutions blur the expenditure comparisons.

The fact that private institutions and private sources of funds play much more prominent roles in education in some countries than in others is not inherently an obstacle to the production of comparable education statistics. In principle, national statistical systems could provide comprehensive and uniform coverage of both the public and private sectors. In reality, however, data on the private aspects of education finance are often missing or incomplete. Consequently, there is a tendency (although with notable exceptions) toward underreporting the expenditures of countries in which the private sector is important. We have here a prime example of an interaction effect: A structural feature, reliance on private funds, interacts with a shortcoming of national statistical systems, inadequate coverage of the private sector, resulting in a comparability problem.

Also under the heading of structural causes are differences in the institutional frameworks within which education is financed. It seems to make a considerable difference whether the agencies ultimately responsible for spending public education funds are special-purpose education authorities (as in the United States, Canada, and the United Kingdom) or general-purpose regional or local governments (as in many continental European countries). Education expenditures often are reported less comprehensively in the latter cases than in the former, mainly because the outlays of general-purpose governments for education-related administrative, support, and ancillary functions sometimes become commingled with similar outlays for noneducation functions, thus losing their identity as expenditures for education.

Similar difficulties arise in cases where the same educational or education-related function is performed by the education authorities in some countries but by noneducation agencies in other countries. As examples, some countries assign responsibility for preprimary education not to the ministry of education but to the ministry of health or social affairs; some place certain types of higher education under the jurisdiction of ministries of health or agriculture; some entrust certain categories of vocational training to the ministry of labor or employment; and some give the responsibility for constructing, and perhaps even maintaining, school buildings to a general public works agency. Because the education-related outlays of such agencies are less likely to be thoroughly covered in national education finance statistics than the outlays of education agencies, the expenditures of countries that rely on the former may be understated relative to those of countries that rely mainly on the latter.

Finally, differences in financial flows and financial mechanisms contribute to certain comparison problems. For instance, in some countries the central education ministry employs and pays teachers directly, while in others the localities are the direct employers but the central ministry reimburses local authorities for the full salary costs. Depending on how each country accounts for these fiscal flows, the essential similarity of these arrangements may or may not be evident in the international statistics. Likewise, the universities of some countries are fully government-funded and tuition-free, whereas other countries require students to pay tuition fees but then offset the costs by giving the students scholarships. Depending on how the latter countries report tuition payments and financial aid, the international statistics may or may not yield correct comparisons of the sources of university funds. Note, once again, that it is not the structural differences alone but rather their interaction with accounting practices that determines whether different countries' figures will be comparable.

Differences in National Statistical and Accounting Systems, Concepts, and Practices

Even in the absence of real structural differences between countries, differences among the national statistical and accounting systems of different countries can generate comparability problems. Among the features of national systems that deserve attention in this regard are (1) the scope of education finance statistics, as defined for internal purposes by each country, (2) the sources from which education finance data are derived, (3) such technical aspects as definitions, data collection procedures, and measurement methods, and (4) an important political or jurisdictional consideration--the division of responsibility for education statistics between the education authorities and the country's national statistics agency. In discussing these features, we distinguish between a country's main, internal system of education statistics, designed to serve national policymakers and other domestic users, and the supplementary set of procedures developed to prepare data for international agencies. The comments under this heading pertain only to the former. The apparatus for international reporting, which usually amounts to no more than a tiny appendage to the main system, is considered separately below.

Countries have diverse views about the proper scope of official national education finance statistics. Some countries limit coverage narrowly. The United Kingdom, for example, generally includes only the expenditures of designated public education authorities in its published reports, omitting not only private expenditures but also the education expenditures of other public agencies. At the opposite end of the spectrum, such countries as Canada, France, and Spain take the view that expenditure statistics should, at least in principle, cover all funding sources, public and private, and all classes of service providers. Other countries occupy various positions in between. In some cases, statistical coverage is limited for doctrinal reasons (for example, the Nordic countries formerly did not consider services for children younger than six "educational"). In other cases, countries simply have not invested the resources necessary to collect financial data from certain sectors (e.g., private primary and secondary schools in the United States). Some limitations of scope can potentially be overcome for purposes of international reporting by constructing estimates of expenditure categories for which data are not ordinarily collected. This has only occasionally been done in practice, however. More often, differences in the scope of internal national statistics translate into differences in the scope of statistics reported to international agencies, to the detriment of international comparisons.

The most important inter-country difference in sources of education finance data is that some countries depend primarily, or even exclusively, on government budget figures, while other countries rely mainly on direct reporting by the agencies or institutions that provide educational services. Some countries use combinations of budgetary data and reporting by service providers. A few conduct household surveys to supplement one or both of the two main sources. Generally speaking, neither government budgets alone nor provider reports alone can provide all the information needed for comprehensive reporting of education spending. Different types of gaps in the coverage of education spending occur, depending on which source, or combination of sources, a country employs.

Government budget data generally afford good coverage of the explicitly identified education expenditures of public education authorities but often fall short in other respects: Sometimes they fail to capture, or to capture completely, the education outlays of government agencies whose primary missions are not educational. Such omissions can be serious where noneducation agencies are responsible for such expensive items as capital outlay or pensions for education personnel. In addition, government budgets usually provide either no information at all or only partial information on education funds from private sources.[3] As will be seen, the practices of relying mainly on government budget data and making little effort to include education outlays not labeled as such in government budgets has led to significant underreporting of education spending by several European countries.

Surveys or censuses of service providers are useful for quantifying the direct expenditures of education agencies and institutions but not for covering expenditures that bypass or never reach the service-provider level. In countries where service providers expend most education funds directly (e.g., the United States, Canada, and the United Kingdom), such surveys cover the great bulk of education spending. The main cause of incomplete reporting in these cases is the failure to collect supplemental data on expenditure items that the surveys cannot cover--for example, outlays for certain forms of financial aid to students and direct expenditures of government agencies above the service-provider level for such things as fringe benefits and administrative and support services. But in countries with more centralized education finance systems, such as France and the Netherlands, or even in such federalized countries as Germany, the situation is reversed: Because most education expenditures (notably, outlays for educators' salaries) are handled directly by central or regional government agencies, government budgets are naturally the main data sources. An important cause of incomplete reporting in these instances is the failure to use surveys or censuses in an appropriate supporting role, namely, to measure the minor but still important shares of spending not under central control, such as local outlays for building maintenance and other ancillary and support functions. In sum, the present mix of systems, with some countries relying mainly on budget data and some mainly on institutional surveys, each reinforced to varying degrees with supplemental data from other sources, creates opportunities for various gaps and inconsistencies in the coverage of national education finance statistics.

Differences in the definitions, data categories, and methodologies adopted by different national education statistics agencies have a direct and obvious bearing on comparability. Because concepts and definitions diverge, identically named statistics supplied by different countries sometimes have substantially different content. Examples of categories for which standard international definitions were lacking during the period covered by this study include preprimary education, adult education, capital expenditure, and teaching staff. Countries also differ in the level of detail of their finance data collections. For instance, some countries distinguish between compensation of teaching and nonteaching staff, but others lump all types of staff together. Some fail to disaggregate expenditures fully by level of education; some do not differentiate clearly among different sources of funds. These data limitations undercut comparisons of various dimensions of the composition of spending.

Whether one agency or another has jurisdiction over a country's education statistics may seem like a political matter divorced from substance, but in fact it can influence what statistics a country collects. In some countries, the national education ministry (or its equivalent) is responsible for both collecting education statistics and preparing international data submissions (as in the United Kingdom and United States); in others, a general national statistics agency has these responsibilities (as in Austria and Canada); and in still others, the responsibilities are divided or shared in some manner between the two types of agencies (as, e.g., in Germany and the Netherlands). The division of responsibility can affect the scope of a country's expenditure statistics. For example, a national statistics agency may be better equipped than an education ministry to take the expenditures of noneducation agencies and private entities into account. The division can also affect the manner and detail in which expenditures are classified. For instance, national statistical agencies seem more inclined than education agencies (1) to favor concepts and categories from national income accounting, (2) to impose the same system of classification on education expenditures as on expenditures for other services (which may imply the absence of specialized breakdowns, such as by type of education personnel), and (3) to avoid estimates and allocations not based on "hard data." Consequently, expenditure statistics can be reported inconsistently simply because some countries' figures are prepared by a general statistics agency and some by the national ministry of education.

Finally, a special problem affecting the statistics of certain federal countries is internal inconsistency of expenditure statistics. Accounting systems and data categories are not fully standardized across, for example, Australian and U.S. states, Canadian provinces, and Spanish autonomous communities. These countries face internal comparison problems analogous to the problems that affect comparisons among nations. The method by which a federal country produces national aggregates from nonstandardized subnational data itself becomes part of the country's international reporting process and, as such, influences the international comparability of the country's statistics.

The International Data Collection System and Process

The normal product of a national education statistics system is what we refer to as the country's "natural" statistics--that is, a set of statistics reflecting the country's own institutional structure, definition of education, accounting practices, and statistical traditions, and that is designed to serve the perceived needs of national policymakers and other domestic audiences. In general, the natural statistics of different countries are not, and would not be expected to be, internationally comparable. The task of the international data collection system and process is to transform the incompatible natural statistics of the different countries into standard international categories.

The international education data collection system has both central and individual-country components. At the center are the international agencies--UNESCO, OECD, and Eurostat--responsible for collecting and processing education statistics. Located in the countries are the national data providers--that is, the units within national education or national statistics agencies responsible for preparing international data submissions. The quality and comparability of the international statistics depends on the performance of both and the interplay between the two.

The main cause of expenditure comparability problems for which the international agencies have been directly responsible is the inadequacy (until recently) of the definitions and instructions disseminated to national data providers. As noted in Chapter 1, the instructions accompanying the UOC joint financial questionnaire (Form UOC2) were vague and scanty in the extreme, offering data providers very little guidance as to how to respond. The INES definitions and instructions for EAG1 and EAG2, though more informative than their UOC counterparts, remained incomplete, ambiguous, and insufficiently detailed. These shortcomings extended to nearly all aspects of the expenditure specifications: the demarcations of the boundaries of education; the designation of included sectors and institutions; the coverage of functions, services, and cost categories; and the classification of expenditures by level, source, nature, and resource category. In each area, national statisticians were left essentially on their own to fill in the blanks, to resolve the ambiguities, and to interpret the international data requests.

Lacking detailed and precise definitions, many data providers responded in the manner we have characterized as natural: They interpreted the UOC and INES data categories in light of the education structures, financial accounting systems, and statistical practices of their respective countries. Not surprisingly, these individual-country interpretations often proved mutually inconsistent, and the resulting statistics were not internationally comparable. Under the circumstances, nothing short of a series of remarkably fortunate coincidences could have yielded a more favorable outcome.

The problems stemming from inadequate instructions and definitions have been aggravated in some instances by logical shortcomings of the international finance data collection instruments themselves. For instance, neither Form UOC2 nor the early INES instruments distinguished clearly or sharply enough between sources and uses of education funds (that is, between the revenue and expenditure sides of education accounts). For example, Form UOC2 mixed together transfer payments, such as scholarships and public subsidies to private institutions, with such categories of final spending as payments of teacher salaries and purchases of instructional materials.[4] These built-in structural flaws amplified the confusion caused by the lack of clear international specifications.

Another feature of the international data collection system that has proven significant for comparability is the provision for communication--or the lack of it--between the international agencies and the national data providers. Prior to the INES project, arrangements for systematic, two-way communication were lacking. As a result, the statisticians charged with preparing national data submissions had only sketchy impressions of what OECD and UNESCO wanted, and the data compilers at OECD and UNESCO had limited, mainly anecdotal information about what the countries had provided. Under INES, communications improved markedly. Data providers and INES staff met periodically (as the INES Technical Group), and dialogue concerning statistical issues went on between OECD and the countries. Nevertheless, the communications still fell far short of what would have been needed for INES to perform a serious quality control function or to provide substantial technical assistance to individual countries. The lack of these more intensive forms of communication is perhaps less properly described as a cause of comparability problems than as a missed opportunity to resolve them.

But only some of the limitations of the international data collection system can be attributed to the international agencies. Ultimately, the ability of an agency like OECD or UNESCO to assemble internationally comparable education expenditure (or other) statistics depends on the national data providers. Their key role is to translate statistics from national categories to the sometimes quite different categories required for valid international comparisons. The quality of that translation depends both on the data providers' perceptions of what the international agencies want and on their ability and willingness to provide it.

The main causes of conflicting perceptions of what is wanted have already been discussed: First, The sketchiness of past OECD and UNESCO guidelines left wide leeway for divergent interpretations. Second, the varying orientations, doctrines, and customary practices of the statisticians in different countries (not to mention the different demands placed on the statisticians by their political superiors--see below) contributed to diverse interpretations, reflecting country-specific perspectives. The principal determinants of a country's ability to respond appropriately include the breadth, depth, and level of detail of the country's internal education statistics--which is to say, the adequacy of the raw material from which international statistics must be generated. One might add the practical factor of resource limitations: A country may interpret the international data requests correctly but still be unable to respond appropriately, simply because the necessary data collection and analytical resources are not available. That brings us to the final major cause of comparability problems, lack of national willingness to comply--a factor whose importance should not be underestimated.

Even when there is no ambiguity as to what is wanted, and even when the necessary data are available, countries are not always willing to prepare statistics in the manner requested by the international agencies. The officials of more than a few countries have expressed openly their reluctance to provide education statistics that differ substantially from those normally presented within the country. Among the stated concerns are that such statistics (and any indicators based upon them) would be unfamiliar to national policymakers and other domestic audiences, would conflict with official government figures and figures published in national media, and consequently might raise difficult and potentially embarrassing questions. Reflecting such concerns, some data providers have insisted on reporting certain expenditures according to their own national categories and definitions, even where these conflict with the UOC or INES specifications.

In some instances, the motives for providing noncomparable statistics are distinctly political. Without mentioning specific countries, we can cite such situations as the following:

- Some countries have been unwilling to include or to exclude specific components of spending as specified by INES, because the resulting figures on expenditure per student would be larger or smaller than those presented internally.
- Some have been reluctant to provide separate figures on compensation of teaching personnel, because international comparisons of compensation per teacher might be used to influence labor negotiations.
- Some have not wanted to disaggregate spending by type of service provider (e.g., public versus private), because the results might raise issues of distributional equity.
- Some have refused to acknowledge the de facto part-time participation of many university students, because to do so would yield estimates of spending per FTE student much higher than the official figures.

Insofar as these kinds of political considerations prevail, international comparability is unlikely to be achieved.

In other instances, however, the reason for countries' unwillingness to respond as requested is more mundane. Developing international statistics different from a country's own internal statistics can be technically difficult and time-consuming, and hence burdensome for the national data providers. Often, the offices charged with responding to OECD and UNESCO are small, the staff have heavy workloads, and the preparation of international data submissions is not a high-priority task. It is understandable, therefore, that data providers will not always embrace enthusiastically international specifications (no matter how substantively meritorious) that create extra, perhaps unusually demanding work.

Note in this regard that the burdens of compliance are distributed unequally across countries. Countries whose educational and statistical systems happen to conform closely with the implicit international model can provide data relatively easily. Those with differently configured systems face greater difficulties and must expend more resources to respond as requested. These practical matters need to be taken into account, along with the conceptual and technical aspects of expenditure statistics, in developing strategies for enhancing comparability.

Summary

Expenditure comparability problems arise out of the interplay between (1) *underlying* causes, which include differences among national education, education finance, and education statistics systems, and (2) *proximate* causes, which are causes related to limitations of the international data collection process.

Structural differences among national education and education finance systems constitute the most fundamental underlying causes--and the only unremovable causes--of difficulty in compiling internationally comparable statistics. Differences among the national statistical and accounting concepts, systems, and practices of different countries also create comparability problems, even in the absence of underlying structural causes. In addition, the differences in national statistical systems can either aggravate or alleviate the problems attributable to structural differences.

Because the statistics prepared for a country's domestic audiences necessarily reflect that country's own structures and statistical practices, such statistics generally cannot be

BEST COPY AVAILABLE

compared internationally. Consequently, the element of the international data collection process on which comparability critically depends is the translation of statistics from each country's "natural," internal data categories into standard international categories. The proximate causes of comparability problems--factors that impede the translation process--include the following:

First, countries may interpret the international data requests inconsistently. A major cause of such inconsistency has been the inadequacy of the definitions and instructions provided in the past by the international data collection agencies.

Second, countries may lack the ability to prepare their expenditure statistics according to international specifications. This inability may stem from limitations of the country's own statistics, insufficient knowledge (which, again, may be the result of inadequate definitions and instructions), or the limited resources available for international reporting.

Third, countries may be unwilling to submit data as requested, even when they are fully capable of doing so. The unwillingness may reflect doctrinal objections to the international specifications, such political considerations as reluctance to present international statistics that clash with those published internally, or simply disinclination to incur the sometimes substantial costs of producing special international statistics.

Implications for Remedial Action

The foregoing discussions of types and generic causes of comparability problems have relatively straightforward implications for efforts to make expenditure statistics more comparable. Certain problems can be handled by changing only the international data collection process; others require changes in (or additions to) the national education statistics systems of the countries concerned. Ultimately, every improvement requires changes in the international data submissions of one or more countries, but many of these changes either depend on, or could be assisted by, action by the international agencies. The options relevant in any specific situation depend on the nature and causes of the particular comparability problem in question.

The single most important step the international agencies can take to advance the cause of comparability is to provide clear, comprehensive, operational, and detailed definitions and instructions to the national data providers. Such guidelines can contribute in three ways: first, by eliminating misinterpretation as a cause of comparability problems; second, by giving national data providers the information they need to translate statistics from country-specific to international categories; and third, by helping the data providers identify necessary changes in, or additions to, national education statistics systems. As explained in Chapter 1, INES has already done a great deal to upgrade the definitions and instructions, first for the EAG3 data collection and later for the new UOE finance questionnaire. Later chapters assess these definitional improvements.

But improved international definitions and instructions can provide only the framework for reporting comparable statistics. By themselves, they do not change any country's data. Only the officials and statisticians of the country concerned can act to fill data gaps, to alter or override national definitions, and to realign data categories. It is useful to distinguish between country-level remedial actions that affect only the country's international reporting and actions that impinge on the country's underlying data collection system.

As indicated in the foregoing discussion of causes, certain comparability problems originate in the process of translating national statistics into international categories. In such cases, countries have the data needed to respond appropriately but in fact do something different, either intentionally or because they misinterpret what the international agency wants or do not know how to provide it. The remedy in such cases is to revise the translation procedure. Depending on the situation, this could involve adding expenditure items that previously were omitted from the country's international data submission (but that are available somewhere in national statistics), deleting items that were inappropriately included, or recategorizing items to conform to the international classifications.

Although national statisticians must handle these tasks, the international agencies can help in several ways. Apart from clarifying the definitions, they can disseminate general technical information on how to respond (e.g., how to apportion expenditures by level when national and internationally defined levels do not correspond). They can also offer country-specific technical assistance--that is, direct consultation with national data providers as to how to apply the international definitions to specific national situations. In cases where noncompliance was intentional, they can try to be persuasive as to both the feasibility and desirability of responding as requested. But ultimately, of course, the decisions of national officials will determine the extent of each country's compliance.

In cases where comparability problems stem from limitations of the underlying national statistics--data gaps, insufficient disaggregation, or unusual national data categories--countries would have to take more drastic steps to provide comparable data. For example, if a country has no mechanism for collecting data on the finances of private educational institutions, it cannot comply with instructions to include such spending, no matter how clear the instructions are and how well disposed the country is to cooperate. The country's only option, short of creating a new survey of private school finances, would be to develop some sort of estimation procedure for filling the gap. Again, the international agency might provide technical assistance, but otherwise there is little it could do.

In general, the division of roles is clear. The international agencies can provide the framework for comparable statistics by providing clear definitions and instructions; they can facilitate the process with information and technical support; and they can encourage the national data providers and try to persuade those reluctant to comply. But in the end, the results will depend on what each country is able and willing to provide. The struggle for international comparability has to be waged one country at a time.

Notes

1. That is, country A really spends only 120 percent more, not 150 percent more, than country B. Country A's relative spending is exaggerated by a factor of 1.25 relative to country B's (150/120), or by 25 percent.

2. Dual-system apprenticeship is an arrangement under which students attend schools for part of each week and engage in organized programs of employer-based training during the remainder of the week. It plays a very important role in the education systems of such countries as Austria, Germany, and Switzerland. The comparability problems associated with dual-system apprenticeship are discussed in detail in Chapter 3.

3. The public education budgets of some countries cover funds from public sources only, ignoring even the private funds received by government schools (e.g., the Netherlands and the United Kingdom). However, the public budgets of other countries, notably Germany and Austria, cover all outlays of public institutions, including the portions financed with funds from private sources, as well as public funds (subsidies) flowing to private schools. In the latter cases, only private funds for private institutions are omitted.

4. Form UOC2 requested a breakdown of expenditures by "purpose," where purposes included not only such final expenditure categories as emoluments of teaching and administrative staff and outlays for school books and materials but also such transfer payments as scholarships and subsidies. To the extent that the recipients of scholarships used the funds to pay tuition fees to institutions, or the recipients of subsidies used the proceeds to hire staff and buy books or materials, this classification scheme would have led to double counting of expenditures.

Chapter 3

DEFINING THE BOUNDARIES OF EDUCATION

A fundamental question in assessing the comparability of education statistics is whether the countries concerned agree on what "education" includes. To the extent that countries define the boundaries of the education sector differently, they will produce incompatible figures--not only on education spending but also on enrollment, staffing, and all other variables that reflect the scale of the educational enterprise. During the period covered by this study, national definitions diverged significantly. Certain activities were deemed educational (for statistical purposes) by some countries but noneducational by others. The definitions have since converged noticeably, at least for the purpose of international reporting, but full agreement has not yet been reached. This chapter examines the major inconsistencies and their implications for international comparisons of education spending.

Naturally, disagreement about boundaries occurs more frequently with respect to the periphery of education than the core. Structural and philosophical differences notwithstanding, all countries recognize primary schools, secondary schools, and institutions of higher education as entities to be represented in education statistics. The difficulties and disagreements arise where education borders and blends into other economic sectors and social institutions. Among the most significant boundary issues, selected for discussion in this chapter, are the following:

- Where the boundary should be drawn between early childhood education and noneducational child care,
- Whether the training of apprentices in the work place should be considered part of education,

- Where the border lies between education and labor training (apart from the question of apprenticeship), and
- Which aspects of adult and continuing education, or other education labeled "nonregular," should be considered to fall within the education sector.

One might also classify as boundary issues questions about the inclusion in education statistics of certain arguably noneducational services produced by educational institutions, such as university research and the patient-care services of teaching hospitals. However, we defer these matters for separate discussion in Chapter 7.

The Boundary Between Early Childhood Education and Child Care

We begin with education for the youngest children--those below the age of compulsory primary schooling. The general issue is where to draw the boundaries between services that qualify as preprimary (or preschool, or early childhood) education and noneducational child care. The former presumably should be reflected in education statistics, including statistics on education expenditures, while the latter should not. Countries gave sharply divergent answers in the past, creating a serious comparability problem. Moreover, the adverse effects of these definitional discrepancies were not limited to comparisons of spending for preprimary education but spilled over to comparisons of spending for all levels of education combined.

Definitional Issues

The two key definitional issues are (1) whether there is a threshold age below which children should not be thought of as participants in education, and if so, what that age is, and (2) whether any distinction should be made--and if so, how--between educational services and "noneducational" child care services for children above whatever age might be selected.

According to some national definitions, education begins at a very early age--three, or even two. France and Belgium are the most notable examples. Two and three year-old children in these countries are served by institutions called schools, operated by the education authorities, and staffed with persons trained as teachers. The most sharply contrasting philosophy prevails in the Nordic countries. There, services for children six and younger are described as child care, or child development, and considered distinct from education. For example, in Sweden, where children normally start primary school at age seven, services for younger children, which are provided on a large scale, are not under the jurisdiction of the education authorities and not labeled education. The definitions in effect in most other OECD countries fall somewhere between the French/Belgian definition and the Nordic definition. The starting age for activities designated preprimary education may be three, four, or five. The institutions serving young children may or may not be labeled schools and may or may not fall under the jurisdiction of agencies responsible for educating older children.

In several countries, the key consideration is not the children's age but whether the types of institutions they attend are recognized as "educational." For instance, there are countries in which some three and four year-olds attend institutions designated preprimary schools, which are said to provide "mainly educational" services, while other three and four year-olds attend institutions with other names, which are said to offer "mainly child-care," or "custodial," services. The former but not the latter are considered parts of the country's education system and reflected in education statistics. This distinction sounds reasonable in principle, but it presupposes something that does not exist: operational definitions of "mainly educational" and "mainly custodial" that can be applied meaningfully to the early childhood institutions of different countries. Lacking such definitions, there has been no consistency of classification. A category of institutions that would be deemed educational in one country would be labeled noneducational in another. Moreover, in some countries where the distinction between educational and noneducational services is made, the basis for differentiation appears not to be substantive (having to do with the nature of the services provided to children) but rather primarily jurisdictional--that is, it hinges on the legal status of the institutions in question or their connection to the ministries or other agencies officially charged with providing educational services.

The instructions put forth by international agencies in the past did not clarify this boundary issue. The definition offered in the ISCED manual rests on the premise that one can differentiate consistently between institutions offering mainly educational and mainly child-care services, but the ISCED definition itself is internally inconsistent. According to the manual (1976, pp. 59-60), education preceding the first level (preprimary education) does not include "play groups, day nurseries, crèches, child-care centers, or similar organizations that have no sustained education purpose." Further, preprimary schools "should be distinguished from facilities such as day nurseries where the objective is simply to take care of young children outside their homes." These dicta seem to be contradicted immediately, however, by a description of preprimary education that cites as characteristic activities singing, dancing, participation in group games, coloring, molding, lettering, use of simple tools, and "extensive use ... of play methods"--precisely the activities one would find in any organized, professionally run day nursery or child care center, whether or not it purports to be an educational institution.

Especially for the very youngest children (two and three year-olds), for whom the level of child development limit the pedagogical possibilities, a distinction between educational services and organized, institutionalized child-care services seems to be, if not meaningless, extremely difficult to operationalize. Even for four and five year-olds, whether a program qualifies as "educational" is, first, a matter of degree and, second, often in the eye of the beholder. It is not clear how the ISCED criterion of "sustained educational purpose" could be applied in practice. The likelihood of agreement on a set of objective, operational, internationally applicable rules for including some early childhood institutions in, and excluding others from, education seems small for the foreseeable future.

Both the UOC Questionnaires and INES's EAG1 and EAG2 data collection instruments adhere more or less to the ISCED approach. The UOC form merely repeats the ISCED instruction to exclude institutions with no sustained educational purpose. INES asked countries to include schools or programs in preprimary education "if the educational development of the pupils is the main objective" and to exclude institutions that "predominantly provide custodial care" (OECD, 1992). Evidence that these instructions were eliciting grossly noncomparable statistics from different countries led INES to revise its definition drastically for EAG3--a development discussed further below.

Apart from differences in defining the boundary between education and child care, several other factors have detracted from the international comparability of statistics on preprimary expenditures:

- In general, preprimary education is more likely to depend at least partly on funds from private sources than is education at other levels. Private funds are less likely than public funds to be covered adequately or consistently in education statistics.
- Large fractions of preprimary education in some countries are provided either by private institutions or by public institutions not under the jurisdiction of the education authorities. Statistical coverage of the expenditures of these institutions generally is less consistent and thorough than coverage of regular public schools.
- Comparing spending per preprimary pupil among countries is problematic because of inconsistent approaches to quantifying full-time-equivalent (FTE) enrollment at the preprimary level.

These problems are taken up in later chapters. The remainder of this discussion focuses on intercountry differences in the definition of the education/child care boundary.

Findings Concerning Individual Countries

The following are brief summaries of the treatment of expenditures for preprimary education in the statistics of the countries covered by this study. Except where otherwise noted, the comments pertain to statistics for financial year 1991, reported to OECD for EAG2.

Australia. Most Australian states have a single year of preprimary education preceding the beginning of compulsory primary schooling at age six. One or two states also enroll four year-olds in preprimary schools. Public outlays for these schools are included in the data submitted to INES, but private expenditures, which are believed to be significant, are excluded for lack of data. In addition, many three and four year-olds participate in public and private day care programs, partly funded by the Commonwealth. Because the day care programs are not considered part of the education sector, both their expenditures and their enrollments have been excluded from the UOC and INES data.

Austria. Most children between age three and the beginning of formal primary schooling at age six are served in public or private kindergartens; a few are served in preschool classes attached to primary schools. For internal purposes, Austria does not consider the kindergartens to be part of the education system and hence does not include their spending in education expenditures, but for the purpose of international reporting, it has classified kindergartens as preprimary institutions and reported their expenditures accordingly. Austria's EAG2 statistics on preprimary spending were incomplete, however, as they excluded some funds from private sources and some expenditures of private preprimary institutions.

Canada. Arrangements for early childhood education vary by province. All provinces but one offer noncompulsory kindergartens, in which 80 to 90 percent of five year-olds participate. Some provinces also offer pre-kindergarten programs for children younger than five. The expenditures of kindergartens and pre-kindergartens attached to primary schools have been included in Canada's education statistics and submissions to OECD.[1] The expenditures of both public and publicly funded private preprimary schools are covered, but those of the relatively few independent private preschools not attached to primary schools are omitted. Day care services for children who have not yet entered kindergarten are not considered part of education, and the corresponding expenditures have not been included in education finance statistics.

France. Beginning at age two or three, children are served in public or private preprimary institutions (*écoles maternelles*). These institutions are under the jurisdiction of the national education ministry, are obliged to follow official curricula, and are staffed by certified teachers; they are classified as schools and considered part of the national education system. Consequently, essentially all expenditures for early childhood services for children ages 2-5 are included in both the internal French statistics and the French UOC2 and INES data submissions.

Germany. Kindergartens serve children from age three to the beginning of formal primary school (usually at age six). These kindergartens do not fall under the jurisdiction of the national or state (Land) education ministries and are not considered part of the education system; hence, spending for kindergartens is not included in internal expenditure statistics. For purposes of international reporting, however, Germany has included public funds for kindergartens in its expenditure figures; data on private expenditures for kindergartens, which consist mainly of fees paid by parents, have not been collected or included.

Netherlands. The basic education sector in the Netherlands (*basisonderwijs*) provides eight years of education beginning with age four. Thus, services for four and five year-olds are institutionally integrated with services for primary students six and older. For international statistical purposes, the Netherlands has partitioned its expenditures for basic education on the basis of age, reporting the estimated outlays attributable to four and five year-olds as spending for preprimary education. Services exist for children younger than four, but these are not considered education and have not been reflected in either internal education statistics or submissions to the international agencies.

Spain. Preprimary education is not organized or funded at the national level. Some autonomous communities and municipalities provide public preprimary education, and there are many private preprimary programs. Enrollment rates in "infant schools" for four and five year-olds exceed 80 percent and 90 percent, respectively. In addition, "kindergartens" enroll small percentages of two and three year-olds. Both public and private expenditures for the infant schools and kindergartens are included in the expenditure figures reported to INES (the private expenditures are obtained from a national household survey). Day care programs (mainly for children four and younger) are not considered part of the education system, and their expenditures are not included in either the internal or the UOC2/INES statistics.

Sweden. Services for children below the age of entry into primary school (normally age seven) do not fall under the jurisdiction of the education authorities and are not considered part of the education system; hence the corresponding outlays are not included in national education expenditure figures. For its EAG2 data submission, Sweden estimated the costs it incurred for serving six year-olds and reported the same as preprimary expenditures. The country's substantial outlays for serving children younger than six were excluded. A practical impediment to measuring Swedish expenditures for younger children is that the pertinent institutions often provide extended day and evening child care services, the costs of which are difficult to separate from the costs of "educational" functions.[2] Nevertheless, for EAG3

Sweden began reporting expenditures attributable to children three and older, thereby multiplying its stated preprimary expenditures several-fold.

United Kingdom. Compulsory primary schooling begins in Britain at age five, one year earlier than in any of the other countries examined. Children ages two to four served either in nursery classes attached to primary schools or in separate nursery schools are counted as preprimary pupils. Although the UK normally combines expenditures for nursery and primary schools in its internal statistics, the UK authorities have allocated a portion of the combined spending (based on the percentage of pupils younger than five) to the preprimary level for purposes of international reporting. The reported expenditures include funds from public sources only; funds from private sources have been omitted from all the UK expenditure figures, including those for preprimary education (see Chapter 5). Coexisting with the nursery classes and nursery schools and serving nearly as many children ages two to four are institutions known as day nurseries and registered playgroups. These are not under the jurisdiction of the education authorities, not classified as educational institutions, and not reflected in the UK's international data submissions.

United States. Nearly all five year-olds attend kindergarten during the year preceding entry to primary school (usually at age six). In addition, substantial percentages of three and four year-olds receive "pre-kindergarten" services. The latter bear diverse labels, are offered by many kinds of public and private organizations, and span the range from strongly educational to mainly custodial services. Although the U.S. normally produces only aggregated expenditure figures covering kindergarten, primary, and secondary education combined ("K-12 education"), it has estimated the kindergarten share of spending and counted it as preprimary expenditure in its UOC2 and INES data submissions.[3] Because the U.S. collects no regular or comprehensive finance data on pre-kindergarten education, its EAG2 statistics reflected only a minor fraction of spending for children younger than five (e.g., spending for programs organized by local education agencies or subsidized with federal funds); the larger fraction, consisting mainly of funds from private sources, was omitted. More recently, however, the U.S. has developed and included rough estimates of the hitherto missing outlays for pre-kindergarten services.

General Findings and Implications for Comparability

To summarize, the range of variation in the statistical treatment of preprimary expenditures among the ten countries covered by this study is as follows: At one end of the scale, France's statistics on preprimary spending are the most comprehensive, as they include expenditures from all sources for nearly all children two and older who receive organized early childhood services. At the other end, Sweden's EAG2 figures are the least inclusive because that country intentionally limited its data to spending on six year-olds (but that policy has since changed, and the Swedish data are now among the more comprehensive). All the other countries occupy various positions in between, with statistics covering varying fractions of what now would be considered (according to the current UOE definitions) spending for preprimary schooling. Germany and Austria report public expenditures for programs serving children three and older, but their figures omit substantial funds from private sources. The Netherlands reports expenditures for all preprimary pupils four and older (except for small private contributions) but nothing for children younger than four. Spain covers most public and private spending for children four and older but only a small fraction of spending for children younger than four. The statistics submitted by Canada and the United States provide near-full coverage of spending for the year of preprimary education immediately preceding the start of primary schooling (education mainly for five year-olds) but include only minor fractions of the cost of serving children younger than five. Australia's statistics also pertain mainly to five-year olds but reflect only funds from public sources. The United Kingdom's preprimary statistics do not reflect spending on five year-olds because most children of that age have already entered primary school; they do cover public expenditures for children four and younger enrolled in nursery schools or classes but exclude expenditures for other types of early childhood programs. The incomplete coverage of many countries' expenditure figures is explained by a combination of lack of data, especially regarding private funds and private preprimary schools, and the deliberate exclusion from education statistics of preprimary institutions not officially recognized as "educational."

Given the variations in definitions and statistical coverage, it would not be reasonable use the OECD statistics collected for EAG2 to compare expenditures for preprimary education across countries. Such a comparison would yield exaggerated estimates of the preprimary expenditures of France, Spain, and the Netherlands relative to those of Australia, Canada, Sweden, the United Kingdom, and the United States. Some of the deviations from comparability are very large. Comparing France and Sweden, the two countries with the most extreme differences in coverage, it appears that Sweden reported less than one-third as much preprimary spending as it would have reported if it had followed the same approach as France--namely, including essentially all expenditures for organized services for children ages two or three and older.[4] Other comparison errors, though not as large, were also impressive. It appears, for example, that the United States, the United Kingdom, and Australia would have had to revise their EAG2 preprimary expenditure figures upward by about 50 percent, 100 percent, and 200 percent, respectively, to achieve rough comparability with countries that had included all organized services for children three and older. Discrepancies of such magnitude, affecting so many countries, render the EAG2 statistics useless for international comparisons of spending for preprimary education. Moreover, comparisons of spending for all levels of education combined would have been impaired by inclusion of the preprimary figures. Recognizing the seriousness of these problems, OECD decided--it seems wisely--to omit comparisons dependent on the preprimary expenditure figures from most of the finance indicators in EAG2.

Changes to Date and Options for Improvement

As evidence of noncomparability accumulated, it became evident that changes would be needed to produce acceptable expenditure (and other) statistics for preprimary education. Divergent national conceptions of the scope of preprimary education, though not the sole cause of the problem, were clearly a major factor. The main specific definitional problem was that countries did not agree about whether or how to distinguish between "mainly educational" and "mainly custodial" early childhood programs. Concluding that it was, and would remain, infeasible for countries to make that distinction consistently, the INES project decided to try a different approach.

In late 1993, INES prepared new instructions for data providers containing the following provisions: First, age three was designated the standard (default) starting age for preprimary education (but with leeway to include two year-old participants in programs also serving children three and older). Second, countries were directed to include in preprimary education all organized, institutionalized, or "center-based" services for children at or above the specified starting age, with no attempt to differentiate between mainly educational and mainly custodial programs. (The terms "organized, institutionalized, or center-based" were intended to exclude such things as home-based child care programs or collective child-minding arrangements.) Third, countries were asked to include preprimary services (as defined above) provided by all types of institutions--public and private, whether or not under the jurisdiction of education authorities, and whether or not labeled "schools." These instructions accompanied the INES finance data collection forms for EAG3.

The definitional changes had important effects on the reporting of preprimary expenditures for EAG3. Several countries that had previously covered only children ages five or older provided EAG3 data for children ages three and four, making their statistics more comparable with those of the countries that had always included the younger children. A number of countries supplied previously omitted data on the expenditures of private preprimary institutions, and some added data for previously omitted preprimary institutions outside the official school sector. Thus, some significant gains in comparability were realized.

At the same time, one new measurement problem emerged. Some of the Nordic countries not only expanded their coverage to embrace children ages three to five but also reported the full costs of the institutions that serve these children, which include the very substantial costs of extended day and evening child care services. As a result, the Nordic countries appear, misleadingly, to be spending about twice as much as other countries on each preprimary pupil (EAG3, p. 88). Other countries that incur similar costs (e.g., France) have not counted them as education expenditures. Thus, a discrepancy has been created that needs to be corrected.

The 1995 UOE finance data collection instrument (OECD, 1995b) adheres to the concept that countries should report expenditures for all organized or center-based services for children three (in some cases, two) or older, without regard to who provides the services or how the services are labeled. It stipulates that the costs of serving children younger than three (or two) should be excluded, using proration methods, if necessary, in cases where such children are served in the same institutions as older children. It also addresses the problem mentioned in the preceding paragraph by stipulating that costs of extended day and evening services should be excluded, where possible.

The UOE system also introduces subcategories to accommodate the requests of some countries to preserve (or restore) a distinction between mainly educational and mainly custodial early childhood programs. This classification scheme, adapted from a taxonomy developed by Eurostat, differentiates between institutions that are and are not "educationally oriented." The operational criterion set forth for this purpose is whether or not the teaching staff of the institutions are required to be "pedagogically qualified"--that is, to have completed appropriate teacher training programs (OECD, 1995b). Although these distinctions seem problematic on both logical and practical grounds, it would be premature to comment before seeing how they work out in practice. In any event, the proposed subclassification of preprimary education does not interfere with the collection of aggregative data on the full range of center-based preprimary programs.

In sum, the current situation is that the revised definitions and instructions now provide a framework for internationally consistent reporting of preprimary expenditures. The main definitional issues still requiring clarification concern (1) cost measurement, in cases where preprimary institutions serve children below the specified starting ages or provide extended day and evening child care, and (2) what distinctions, if any, should be made within the preprimary category. The principal practical question, at the moment, is how well countries will be able to comply with the definitional changes already introduced.

Apprenticeship: The Dual System

What is the line of demarcation between education and training of the labor force? To the extent that countries answer differently, definitions of the education sector will be inconsistent, and the comparability of education statistics will suffer. The comparisons most directly affected will be those of spending for upper-secondary education and, to a lesser extent, tertiary education; however comparisons of spending for larger aggregates, such as all primary-secondary education or all levels of education combined, also will be impaired.

A salient aspect of the education/training distinction concerns programs for training apprentices. In particular, should the "dual system" of apprenticeship training--characteristic of Germany, Austria, Switzerland, and several other countries--be considered part of the education system, and, if so, how should its costs be reflected in the education finance statistics? Other significant issues concern apprenticeship models other than the dual system, arrangements involving alternation between longer intervals of school-based and work-place training (known as "sandwich" programs in the United Kingdom), publicly or privately sponsored labor training programs outside the regular education sector, and various forms of employer-provided or employer-sponsored training for employees. The remainder of this section deals with dual-system apprenticeship. The following section offers briefer comments on other aspects of the education/training boundary.

Issues of Definition and Measurement

The treatment of expenditures for training apprentices under the dual system has a major effect on international comparisons of expenditures for upper-secondary education and lesser but still substantial effects on all broader comparisons in which upper-secondary spending is included. Participants in dual-system apprenticeship programs receive part of their instruction in schools and part in work places (hence the term "dual"). The typical arrangement in Germany and Austria is that students attend public vocational-technical schools one to two days per week and receive training in enterprises (mainly private firms but also such public enterprises as the postal system and national railways) during the remainder of the week. The relationship between employer and apprentice is specified in a formal contract. Both the employer-based and the school-based training are provided by certified instructors according to official curricula, and students must pass standard national examinations to be certified in their fields. Essentially the full cost of the work-place training is borne by the employers. Dual-system apprenticeship training is the dominant form of upper-secondary education in both countries, enrolling more than 50 percent of all German and 70 percent of all Austrian upper-secondary students (as of 1992). The dual system also plays a large role in Switzerland and lesser but still significant roles in such countries as France and the Netherlands.[5]

OECD has already resolved the most basic definitional issue concerning dual-system apprenticeship by stipulating that it qualifies as full-time education (EAG2, p. 253). This decision recognizes that the dual system functions in lieu of full-time vocational-technical schooling and that, were it not for the apprenticeship system, most of the same students would have to be educated in full-time, publicly supported upper-secondary institutions. The classification as full-time education logically implies that both the school-based portion and the employer-based portion of dual-system training should be reflected in education statistics. Accordingly, most of the countries concerned have been counting apprentices as full-time upper-secondary (ISCED 3) students for the purpose of reporting enrollment statistics to INES. Unfortunately, the failure to achieve similar consistency with respect to the statistics on expenditures (and staffing) has given rise to serious comparability problems.

The two principal issues concerning expenditures for dual-system apprenticeship are (1) whether the costs incurred by employers (mainly private firms) to train apprentices in the work place should be counted as part of education spending (there is no controversy concerning the inclusion of expenditures for the school-based portion), and (2) if so, exactly which employer expenditures should be included and how they should be measured. An affirmative answer to the first question is almost unavoidable, not only on logical grounds but also in light of the damaging effects on international comparisons of omitting the employers' expenditures.

To illustrate the potential adverse effects, consider an expenditure comparison between a country that relies on the dual system and an otherwise identical country that offers only school-based upper-secondary education. Using hypothetical but realistic numbers, suppose that 60 percent of the first country's upper-secondary students participate in the dual system and that each participant spends 70 percent of his or her time in employer-based training. One might say, as a first approximation, that at least 42 percent of the country's total cost of upper-secondary education (70 percent of 60 percent) is paid by the employers, but this would probably understate the true employer share, because, by all indications, work-place training is substantially more expensive than school-based instruction. Thus, omitting the employers' expenses would create the false impression that the first country spends only about half as much on upper-secondary education as the second country, when the reality is that the first country is the higher spender of the two.

Once the principle of including the employers' costs is accepted, the question is how these costs should be quantified. The threat to comparability now reverses direction: The danger is that the employers' outlays will be exaggerated. The reason is that a major part of the expense incurred by the employers--perhaps half or more--is not the cost of instructing apprentices in the work place (salaries of instructors, materials, equipment, etc.) but rather the cost of the apprentices' salaries and other compensation. In both the German and Austrian systems, the salaries paid to apprentices, though lower than the regular minimum wage, are large compared with the cost per FTE student of school-based education (e.g., on the order of

$12,000 per year in Germany). Including the cost of compensation as well as the cost of training could inflate the cost of apprenticeship programs by 50 to 100 percent. It is important, therefore, to ensure that expenditures for training under the dual system are clearly separated from expenditures for compensation, so that the former but not the latter can be taken into account in comparing upper-secondary spending across countries.

The proposition that the compensation of apprentices should be excluded has engendered some controversy, however. Although it is generally agreed that compensation and training costs should be separated, some have argued that the compensation of apprentices is at least in part a subsidy for student living expenses, similar to the subsidies that many countries provide to university students. The implication is that such compensation should be treated in more or less the same way in expenditure comparisons as the living expense portion of scholarships. But the problem with the argument is that not all--and perhaps not any--of the apprentices' compensation qualifies as a subsidy for living expenses. At least a portion constitutes payment for the apprentices' current contributions to production. In theory, payments for the apprentices' services as workers should not be counted at all in education expenditures (just as we would not count, for example, the salary paid to a university student who holds a part-time job while attending school). Only the *difference*, if any, between the apprentices' total compensation and the value of their contributions to production can legitimately be considered a student subsidy, and only this difference should be included in even the broadest definition of spending for education. In practice, it would be very difficult to separate the subsidy and non-subsidy components. How would one quantify the apprentices' output in situations where training and participation in real work are intertwined? Although quantification has been attempted, it is not clear that the problem is soluble. For the moment, the issue has been rendered moot by findings from German and Austrian studies of negligible net subsidies.[6] In principle, however, it is an issue that remains unresolved, and that could create comparison problems in the future.

Current Statistical Practices

The situation with respect to reporting the employers' costs of apprenticeship was unsatisfactory for EAG1 and EAG2 and remains unsatisfactory today. Of the countries reporting finance statistics for EAG2, only Germany included expenditures of private employers for training apprentices under the dual system. The German figure, an expenditure of around 40 billion Deutschmarks (DM) in 1991, combined the cost of training and the full cost of the apprentices' compensation. This figure translated into about DM 29,000 (around U.S. $14,000) per apprentice, or more than three times the reported German expenditure per student for other forms of secondary education. The German estimate was derived from a special study based on a sample survey of employers.[7] No statistics on expenditures for training apprentices are collected regularly from German firms.

An Austrian study similar to the German studies, also based on a sample survey of employers, was completed recently (Stepan, 1993). According to this investigation, employers spent an average of about 60,000 Austrian schillings (about U.S. $4,250) to train each apprentice in 1991, not counting the larger amount spent on each apprentice's compensation. Although Austria did not have these estimates available in time for EAG2, and chose not to include them in its expenditure data for EAG3, it now has the ability to include them in the future. To our knowledge, the other countries concerned have no such estimates (at least of recent vintage) or have chosen not to report them.[8]

It should be noted, moreover, that the special studies conducted to date do not cover the full costs of the dual system. Both the Austrian and the German sample-survey studies leave out the expenditures of public employers. Also omitted are expenditures of the non-

BEST COPY AVAILABLE

education ministries responsible for the dual system (e.g., the Austrian Ministry of Economic Affairs) and amounts expended by private or quasi-public bodies such as chambers of industry, commerce, and labor, which are heavily involved in organizing the apprenticeship programs in Germany and Austria.

Implications and Options for Improvement

The effects of the current statistical shortcomings are evident. Because Germany was the only country to include private firms' expenditures for training apprentices in its EAG2 figures, its expenditures for upper-secondary education were inflated compared to those of other countries with dual-system apprenticeship programs. The inclusion of apprentices' compensation in the German figures aggravated the problem, resulting in gross exaggeration of Germany's upper-secondary expenditures relative to those of all other OECD countries. Germany appears in EAG2 (p. 92) to spend more per secondary student than any other country. Meanwhile, because the other countries that rely on dual-system apprenticeship omitted employer outlays, their upper-secondary expenditures were understated relative to those of all the countries that do not follow the dual-system approach.

Eliminating this comparability problem will not be easy. What is required is for each of the countries concerned to develop estimates of the cost to employers of training apprentices under the dual system. Moreover, it is important that the estimation methods used be valid and reasonably consistent across the countries. The much simpler alternative of uniformly excluding all employers' costs of apprenticeship from comparisons of education spending is unacceptable. To adopt it would be to guarantee permanent noncomparability of expenditures for upper-secondary education between the countries that do and do not rely heavily on employer-based training.

The last statement deserves one important qualification, however. Recognizing that it will be some time before most of the countries concerned can estimate employer outlays, it makes sense in the interim to exclude the work-place portion of apprenticeship programs from international comparisons of spending per upper-secondary student. To do this requires omitting from the per-student calculations (1) the employer expenditures of the one or two countries able to report them (Germany, and perhaps Austria) and (2) the portion of full-time-equivalent upper-secondary enrollment representing the time spent by apprentices in the work place. In Germany and Austria, that portion amounts to about 70 percent of the total number of apprentices. The resulting expenditure-per-student figures would be at least roughly comparable across countries.[9] Note, however, that this tactic does nothing to improve the comparability of such other finance indicators as secondary expenditure relative to GDP and secondary expenditure as a share of total education spending. These indicators will remain noncomparable between the countries that do and do not rely on the dual system until satisfactory data on the employers' costs can be developed.

INES emphasized in its instructions for EAG3 the two key points that (1) countries should include employers' expenditures for apprenticeship in their expenditure statistics and (2) the expenditures so reported should reflect only the cost of training, not the apprentices' salaries or other forms of compensation. The same points appear in the directions for the new UOE finance questionnaire. Thus, whatever ambiguity may have existed on this score in the past has now been resolved. In addition, INES adopted for EAG3 (on a small scale) the interim solution outlined above for comparing expenditures per student.[10]

The main definitional issue not yet addressed definitively is whether it would be appropriate under some circumstances for a country to report part of the apprentices' compensation as a subsidy for student living expenses. The deferral of this issue is of no immediate consequence because, as mentioned earlier, the countries that have conducted sample-survey cost studies found essentially no net subsidies.[11] Nevertheless, the issue could easily emerge again if some future study were to find a substantial excess of compensation over the value of the apprentices' contribution to production.

With the main definitional issues settled, the pending question is whether, or to what extent, the countries that have been unable to report employers' costs of apprenticeship in the past will be able to do so in the future. The main obstacle to such reporting is that data on these costs are not normally collected separately in national statistical systems. The expenditures in question are mainly those of private firms. The pertinent costs appear in the firms' own financial accounts but are not necessarily differentiated from other costs of doing business. Even where they are identified as expenditures for training, they may not be differentiated from outlays for other types of training, such as retraining or continuing training of employees who are not (or are no longer) apprentices. Government statistical agencies are not accustomed to thinking of these costs as part of education expenditures and have not attempted to separate them from other business expenses.

It is precisely because data are not routinely collected that Germany and Austria had to conduct special sample-survey studies to estimate employers' spending for the dual system. Such studies have inherent limitations, however. One is that they are rare events. Germany has conducted two large-scale sample surveys of employers, one recently and one more than a decade earlier. Austria's recently completed study is the first of its kind. The fact that the studies are "special" is a problem in itself. It means that they rely on one-time, or ad hoc, data collection and analysis procedures rather than on a routinized methodology. These features suggest a low probability that results will be comparable across countries, or even within the same country for different years.

There also are technical difficulties. The data collection method on which the special studies have depended, a sample survey of employers, requires firms to estimate variables not normally found in personnel or financial records. For example, a firm may be asked to estimate the number of hours expended by its employees to train apprentices. In the case of a large firm employing full-time instructors, such an estimate might not be difficult to prepare, but in smaller firms, where apprentices learn on the job, working alongside regular employees, it might not be possible to produce meaningful estimates of instructor hours. Similarly, it may not be easy to distinguish between materials and equipment used for training and materials and equipment used for production. Designing appropriate samples of employers is also a potential problem, given the need to represent different industrial sectors and firms of different sizes. Partly because of qualms about the soundness of the sample-survey estimates, the national statistical agencies of Germany and Austria have been reluctant to incorporate estimates from the special studies into either their own national education statistics or their international data submissions.[12]

The main constructive role that the international data collection agencies can play in this area is to promote the development of national capacities to estimate the costs of training apprentices in the work place. Specifically, OECD, UNESCO, and/or Eurostat might usefully encourage such steps as the following:

1. The initiation by other countries with important apprenticeship programs of sample-survey cost studies similar to those already undertaken by Germany and Austria;
2. The development in Germany, Austria, and the other countries concerned of systems for collecting data from employers at regular intervals, perhaps every three or five years.
3. International consultation and coordination regarding the collection of data on the cost of apprenticeship programs, with a view to achieving

some degree of international consistency in expenditure categories, data collection procedures, and estimation methods; and

4. Developmental work to resolve conceptual and technical issues of measurement, including the problems concerning compensation, subsidies for student living expenses, and the value of the apprentices' contribution to production.

Other Aspects of the Education/Training Boundary

In addition to dual-system apprenticeship, such problems as the following in the border area between education and labor training pose problems for international expenditure comparisons:

- Forms of apprenticeship training other than the dual system,
- The employer-based components of programs of training in alternation,
- Public and private labor training programs not under the auspices of the education authorities,
- Employer-provided training for employees, other than the specific programs cited above.

Only very limited information was obtained for this study about the provision or financing of these modes of training. Because the activities in question often are institutionally and administratively separate from activities deemed educational, the education agencies we visited usually had little information concerning them, and we lacked sufficient resources to pursue the matter with labor or employment ministries or other cognizant authorities. Consequently, we can offer only a general discussion of potential comparability problems and some accompanying examples, rather than a full review of national statistical practices in this area.

Forms of Apprenticeship Other than the Dual System

Almost eclipsed by debates about the dual system is the question of how to deal statistically with other forms of apprenticeship, less closely related to schools. Such "non-dual" apprenticeship programs exist in a number of countries, though often on a relatively small scale. They may be organized by national or subnational labor or employment authorities, business or labor associations, or individual trade unions, or under cooperative arrangements involving two or more of these parties. Apprenticeship arrangements not sharing the characteristics of the dual system are significant in, for example, Australia and Ireland. In the United States, union-sponsored apprenticeship programs are important in certain occupations, such as the construction trades.

Without attempting to generalize about how such programs are structured, we can venture that they are less likely than programs under the dual system to include such elements of formal education as detailed official curricula, instructors formally certified as teachers, and national qualifying examinations. They may not have a school-based component, or the school component, if there is one, may be limited to taking specified courses offered by educational institutions. Often, however, the differences are matters of degree. For instance, even programs not organized under official auspices (e.g., programs run entirely by unions) may be designed to qualify apprentices for professional licensure, based on standard tests or other official or quasi-official criteria.

We do not know of any OECD country that has included either in its internal education expenditure statistics or its INES or UOC2 submissions the costs incurred by employers, unions, or associations to train apprentices under these types of apprenticeship arrangements. Although the INES instructions did not distinguish explicitly between the dual-system and other forms of apprenticeship, the accompanying definitions were tailored to the dual system in that they mention apprenticeship contracts and alternation between school and work (EAG2, p. 253). Form UOC2 does not mention apprenticeship at all. In other words, the question of whether, or under what circumstances, non-dual-system apprenticeship should be considered part of education has hardly been addressed.

In reaction to the extensive discussions that have taken place regarding the dual system, representatives of countries with other types of apprenticeship have asked whether their apprenticeship programs should not also be represented in the OECD education statistics. The argument for inclusion is essentially the same as applies to the dual system--namely, that (1) apprenticeship programs, regardless of who organizes them, whether they have official status, or whether they are linked to schools, perform functions similar to those of school-based vocational-technical education, and (2) in the absence of the apprenticeship programs, many of the same students presumably would have to receive their occupational training in regular educational institutions. The arguments to the contrary hinge on the absence, in some cases, of such features characteristic of regular education as formal curricula, teacher certification, and standard examinations; the programs' lack of legal or official status as educational activities; the fact that the programs in question may cater to persons who have already completed, or are too old for, upper-secondary education; and the difficulty, both in principle and in practice, of distinguishing between informal apprenticeship programs and other training of newly hired workers by their employers. For the moment, the issue remains unresolved. It would be helpful for OECD to lay out explicitly for the countries what statistical treatment is desired.

Programs of Training in Alternation

This somewhat awkward term refers to arrangements in which students intersperse fairly long intervals of school attendance with intervals of work-place training or work experience. It covers, for example, programs in which a student spends a semester, a half year, or a year at a work place in between periods of formal schooling. Such programs exist in various forms in a number of countries. In the United Kingdom, students enrolled in "sandwich" courses in further or higher education spend half or more of each year in full-time study and the remainder in industrial training (with the latter considered an integral part of the course). In Denmark, the basic vocational-technical education system (the Danish counterpart of the dual system) features alternating intervals of formal schooling and supervised work experience. In the Netherlands, programs of senior secondary and higher vocational-technical education (MBO and HBO) may involve periods of coordinated on-the-job learning in industry. In Germany, periods of practical work experience outside the institutions are considered integral parts of the programs of both upper-secondary vocational-technical institutions and tertiary-level technical institutions (*Fachhochschulen*). One might also include in the same category programs that require students to serve as interns or student practitioners as a condition for qualifying in their fields--for example, programs for training nurses and teachers. It is apparent, therefore, that training in alternation is a fairly widespread phenomenon at both the upper-secondary and tertiary levels of education.

The definitional and statistical difficulties posed by programs of training in alternation are similar in many respects to those posed by apprenticeship. That the school-based components of these programs should be included in education statistics is not in dispute. Rather, the key issues are (1) whether the participants should be counted as students (and, if so, whether they should be counted as full-time students) during their interludes in the work place, and (2) whether the costs of their on-the-job training or work experience should be included in education expenditures, and, if so, how this might be accomplished.

Although we have not investigated current practices in detail, our impression is that the countries concerned generally do define the participants in such programs as students, even during the periods when they are not attending school. The United Kingdom's enrollment statistics, for example, recognize two classes of students: (1) full-time *and sandwich* students and (2) part-time students. The amalgamation of "full time" and "sandwich" in the first category leaves no doubt that the sandwich students are to be considered full-time participants. But whether they are so counted in practice is less certain. British enrollment counts are based on a student census conducted on a single day of the school year, which means that sandwich students in the work-place phase of their program on that date may go unrecorded. The same problem may affect other countries that rely on once-per-year counts for their enrollment statistics. The results may also depend on whether students are obliged to register officially with schools even for the periods of out-of-school training.

To our knowledge, no OECD country has attempted to measure the costs incurred by employers in connection with programs of training in alternation, and we doubt that any country has included such costs in its education expenditure figures. This means that the expenditures for secondary or tertiary education (or both) of the countries concerned have been understated to the extent that training is provided in the work place. The effect on calculated values of spending per student depends on whether the persons training in the work place are included in measured enrollment. If not, the effect on the spending-per-student figures would be slight. In the worst case, however, the students would be counted and the employers' costs would be omitted, resulting in understated expenditures per student for the level of education in question.

The difficulty of estimating the costs of work-based training depends on the type of training arrangement. In the case of Danish-style apprenticeship, for example, the cost measurement problem would be essentially the same as under the dual system. In principle, a German-style sample survey of employers could provide the needed data. However, in cases where the persons training in the work place are tertiary or advanced upper-secondary students, measuring the employers' costs might be even more difficult. Unlike young apprentices, the more advanced students are unlikely to spend much time in separate training activities or with designated instructors. They are more likely to function as regular (albeit junior) staff of the organizations to which they are assigned. Depending on the terms of compensation, their involvement could yield a net financial benefit rather than a net cost to the employers. It seems doubtful that the net costs, if any, could be quantified without detailed studies of particular cases. As a practical matter, it might be reasonable to forget about cost measurement for such students and to focus instead on adjusting the enrollment statistics to avoid misleading estimates of expenditure per student.

Public and Private Labor Training Programs

National and regional labor or employment ministries often operate training programs that the countries concerned do not classify as education and do not take into account in compiling national education statistics; yet such programs may be similar to programs labeled educational by other countries. The participants in the so-called noneducational training programs may include school-age individuals who have dropped out of school, persons who have completed compulsory schooling but are seeking further training, unemployed youth or adults, or employed individuals seeking retraining for new occupations. Examples include the Youth Training (YT) and Employment Training (ET) programs sponsored by the Department of Employment in the United Kingdom, various programs conducted under the Job Training Partnership Act (JTPA) by the Department of Labor in the United States, and certain programs operated by the Federal Labor Agency in Germany.[13] In some countries, training programs of similar character may be sponsored and supported by such non-governmental bodies as chambers of business or labor or associations of firms in particular sectors of industry.

Comparability problems arise in cases where essentially equivalent forms of training are provided outside the education sector in some countries and inside the education sector in others. For example, if one country trains unemployed youth in programs operated by vocational-technical secondary schools, while another country provides similar training in special centers belonging to the labor ministry, and the latter are not covered by the second country's education statistics, the second country's expenditures will be understated relative to the first country's. Comparisons of upper-secondary spending are the most likely to suffer, but comparisons of non-university tertiary (ISCED 5) spending could also be distorted in some cases. However, comparisons of expenditure per student probably would be no more than slightly affected if both the enrollments and the expenditures of training programs outside the education system were omitted from the education statistics.

It was beyond the scope of this study to catalog the labor training programs of each country, much less to assess the equivalency of such programs to activities that other countries label "education." Such an analysis would be a major undertaking. There are no generally accepted rules or criteria for drawing the education/training boundary or deciding which training-type programs merit inclusion in education statistics. No guidelines on the topic have appeared in the INES or UOC instructions. The unsatisfactory de facto solution adopted by some countries (implicit in the countries' statistical practices) has been to include training programs in education statistics, or not, depending on whether they are housed within the officially or institutionally defined education sector. Under this approach, comparability problems can stem from inter-country differences in the distribution of responsibilities among different ministries. One possible strategy for improvement would be to conduct an empirical review and assessment of existing labor training programs, followed by an effort to define the education/training boundary in functional rather than jurisdictional terms. Another, perhaps more attractive option, feasible only in the long run following much developmental work, would be eventually to expand the international education statistics into a broader set of statistics covering the whole range of education and training activities.

Employer-Provided Training of Employees

Finally, we comment on expenditures made by employers to train their regular employees--that is, employees who are neither apprentices nor participants in programs of training in alternation organized by educational institutions. As long as the conceptual distinction between education and labor training is maintained, it would seem that most, if not all, internal training in both private firms and public agencies must be placed in the latter category. However, there is some question as to how well this rule has been implemented up to now in the reporting of education statistics.

The intention of OECD and UNESCO to exclude employer-provided *continuing* training from the education statistics is not in doubt, and, for the most part, the countries have complied. (An exception was Germany's inclusion in its EAG1 expenditure data of substantial outlays for continuing training of workers in private firms, but this has since been corrected.) The status of *initial* training in firms is less clear-cut, however. In the INES instructions for EAG1 and EAG2, one of the items listed as a legitimate category of private spending for education is "expenditure by employers for initial vocational training." Although the intent may have been to include only private firms' expenditures for organized programs of apprenticeship or training in alternation, no such limitation was stated explicitly, and some countries seem to have construed the instruction more broadly. France, for example, has included in its expenditure figures the outlays of "internal training centers" (*centres de formation interne*) operated by both private enterprises and public agencies. Spain has included expenditures for in-service training of the personnel of government agencies. The expenditures of these countries--and any other countries that may have included similar types of training costs--are overstated relative to those of countries that have drawn a sharper distinction between education and training programs.

Even an unequivocal instruction to exclude all employer-provided training would not be without problems. The distinction between employer-provided training and training offered by educational institutions is not always clear-cut. To be sure, some cases seem unambiguous: Training that takes place on a firm's premises, with the firm's own employees as the trainers, presumably should not be reflected in education statistics. On the other hand, the participation of a firm's employees in courses offered by regular educational institutions presumably should be included, even if the employer pays for both the training and the employees' time. But such cases as the following are ambiguous: (1) a firm arranges with an educational institution to offer a training program designed specifically for the firm's employees; (2) teachers employed by an educational institution train a firm's employees, under contract, on the firm's own premises; (3) a firm's employees are trained at a technical training center, organized like a school, financed by a either a public noneducation agency or an association of firms. A more precise and operational definition of "employer provided" than has yet been put forward is needed to make the line of demarcation clear.

A related consideration is that some countries require private firms to help finance continuing education and training, whether or not they provide the training themselves. private businesses in France, for example, are obliged to contribute an amount equal to 1.2 percent of their total wage bill for this purpose. The French firms apparently can choose whether to provide this mandated training directly or to pay for training at external training centers or educational institutions. The fact that these different modes of training are deemed more or less interchangeable is both conceptually and statistically problematic. It calls into question the rationale for keeping employer-provided training out of education statistics, while including substantively equivalent training provided by outside suppliers.

The implication is that comparisons could be misleading between countries that rely to different degrees on employers, as opposed to educational institutions, to provide initial and continuing training of workers. In particular, the education expenditures of countries that require employers to provide certain types and amounts of training are likely to be understated relative to the expenditures of countries that depend on the education sector to perform essentially the same functions. In principle, one might contemplate the alternatives of (1) extending the education statistics to encompass both education and labor training or (2) counting all initial training (as opposed to continuing training) as "education," without regard to who provides the training services. Neither is a practical short-term option, however, because few countries have the capacity to collect systematic (not to mention internationally consistent) data on employer-provided training. In this important respect, the issue of the education/training boundary is unsettled, and is likely to remain so for some time to come.

Adult, Continuing, and "Out-of-School" Education

Some of the more troublesome boundary issues concern educational activities conducted outside of what countries define as the "regular" education system. These activities go on under a variety of labels, the most common being adult, continuing, out-of-school, and nonformal education. There are three main sources of difficulty. First, no standard or generally accepted international definitions exist for any of these categories. Forms of education that are considered parts of regular secondary or tertiary education in some countries are classified as nonregular, adult, or "out of school" (*extra-scolaire*) education in others. Second, differences among countries in the institutional structures within which "nonregular" education is offered translate into different statistical treatments of enrollment in, and expenditures for, the nonregular programs. Often, the decisive consideration is not the content of the education in question but rather whether it is institutionally or administratively separate, and hence feasible to differentiate statistically from other forms of schooling. Third, the international data collection agencies have provided incomplete and sometimes contradictory instructions as to whether or how statistics on adult, continuing, or other nonregular education should be reported. The resulting inconsistent treatment of spending for these activities has reduced the validity of international comparisons, especially of spending for secondary and tertiary education.

Differences in Definitions

Each country's definitions of adult and continuing education, or whatever other categories of nonregular education the country recognizes, seem to be based on some combination of the following factors:

- *The age of the participants.* Most countries agree that adult and continuing education are services for certain types of individuals beyond the normal completion age of compulsory schooling (but some countries note minor exceptions, as when younger students attend establishments defined, institutionally, as providers of adult education.)
- *Other participant characteristics.* Some countries classify the education of persons with certain attributes--for instance, adult immigrants, unemployed persons, or secondary school dropouts--as adult education, independent of the level or content of the instruction in question.
- *Part-time status.* Most education described as adult or out-of-school is part-time (although exceptions exist--e.g., full-time education of the unemployed).

However, whereas some countries distinguish between part-time adult education and part-time regular education, other countries do not acknowledge that the latter exists. The tendency to equate part-time with nonregular is a major source of inconsistency in expenditure (and other) statistics.

- *Function and content.* Some countries identify certain instructional activities as adult or out-of-school education on the basis of content, participant objectives, or a combination of both--as in the cases of leisure, personal interest, and recreational courses. Sometimes activities are labeled continuing education on the basis of function--for example, upgrading the skills of the unemployed or retraining workers for new jobs--even though the content may be no different than in the regular curriculum.

- *Type of institution.* Sometimes the basis for distinguishing between regular and nonregular education is neither the content of the instruction nor the characteristics of the students but rather the type of institutional setting in which the education takes place: Students at "regular" secondary or tertiary institutions are deemed to be regular students; those at separate adult or continuing education institutions (or institutions for part-time study) are classified into the corresponding "nonregular" categories.

- *Level of education.* Finally, the criteria for distinguishing between regular and nonregular education sometimes differ by level. Below the tertiary level, the distinction often depends on age and other student characteristics, but at the tertiary level, these factors may not apply. Some countries define all university students as regular, reserving the nonregular labels for students at "lesser" institutions. Others identify adult or continuing tertiary students on the basis of part-time status alone.

Two important implications of this definitional diversity are the following: First, when countries are asked to exclude activities described as adult, continuing, or out-of-school education from their statistics (as they have been in the past), it is virtually guaranteed that some countries will construe the excludable categories more broadly than others. Consequently, "regular" education, the category that remains after the specified nonregular categories have been excluded, will be defined more inclusively by some countries than by others. Second, if countries were asked to differentiate statistically between adult, continuing, and out-of-school education, on one hand, and regular education, on the other, it is equally certain that they would not be able to do so consistently. Hence, one can expect neither the statistics pertaining to regular education nor those pertaining to the nonregular categories to be internationally comparable.

Differences in Institutional Structures

The key institutional factor associated with internationally inconsistent statistical treatment of nonregular education is that services described as adult, continuing, or out-of-school education are provided by separate, specialized institutions (or administratively separate components of institutions) in some cases and by regular educational institutions in others. In some countries, one arrangement or the other predominates, but in others the two modes of service provision coexist, sometimes but not always with differentiated functions. Each arrangement gives rise to different statistical problems.

Consider separate institutions whose sole function is to provide adult or continuing education services. These include special schools to which dropouts can return to earn a secondary qualification, schools that offer continuing occupational education to persons in the work force, and, in some countries, free-standing adult education institutions that provide a wide variety of services to adults who have completed regular schooling. Enrollments in separate, publicly operated adult education institutions are usually reported in national (internal) education statistics, but countries differ with respect to their coverage of enrollments in separate private institutions. If the institutions, public or private, receive public resources, the public funds may be reported in a separate adult/continuing education category in national data, but fees paid by students and other private funds flowing to such institutions are likely to be omitted. Some countries maintain separate adult/continuing education divisions within larger institutions (e.g., extension or extra-mural departments of universities) and show the enrollments of these divisions separately in national data; but showing the expenditures of such separate administrative entities, or even the publicly financed portion of expenditures, is less common. Furthermore, some adult education is excluded not for lack of data but because the institutions in question are considered to lie outside the education sector. For instance, they may be operated by municipalities or ministries of social affairs, and hence fall outside the purview of education statisticians. To the extent that such gaps in coverage exist, expenditure comparisons for the pertinent levels of education will be distorted.

When the same institution provides both adult/continuing education and regular education, separating the two statistically can be very difficult. Separate enrollment data are easier to produce than separate expenditure figures, but even the enrollment statistics are problematic in several respects: First, as already noted, the criteria for identifying adult and continuing education students vary among countries. Second, some countries consider part-time and nonregular synonymous, making their figures noncomparable with the figures of countries that recognize part-time regular education. Third, even when counts of adult/continuing students are otherwise valid, the lack of a standard method for translating them into full-time equivalents impedes comparisons of spending per student (see Chapter 10). The only way to estimate expenditures for adult and continuing education that is not administratively separate from regular education is to prorate the total expenditures of institutions between the regular and adult/continuing categories. However, because these prorations would have to be mainly enrollment-based, the results would be adversely affected by all the aforementioned problems of enrollment measurement, plus additional problems concerning the quantification of unit costs).

In practice, few countries have developed procedures for isolating the adult/continuing education component of institutional expenditures. The compilers of national education finance statistics usually take whole institutions, or categories of institutions, as the units of analysis. They either include all expenditures of a type of institution in, or exclude all expenditures from, their education finance figures. (An exception is France, which--by methods unknown--separates the expenditures for regular and *extra-scolaire* education of regular secondary and tertiary institutions.) The result is to diminish the accuracy of comparisons between countries that offer adult/continuing education in separate institutions and countries that offer it through regular schools. To appreciate the full ramifications of the definitional and statistical problems, however, one must view them in light of the instructions provided to countries by the international data collection agencies.

Inconsistent International Definitions and Instructions

The national respondents to the UOC and INES questionnaires have had to deal with incomplete, conflicting, and changing instructions regarding statistics on adult, continuing, and other nonregular education. All current and former sets of international guidelines have been problematic in this regard, placing the national statisticians in a difficult position and virtually ensuring the incompatibility of the resulting statistics.

The ISCED manual indicates that programs of adult education (and, more generally, "out of school" education) not only should be covered by education statistics but also should be assigned to the standard ISCED levels of education (secondary, tertiary, etc.) on the same basis as regular education programs. They should not be considered to lie outside the domain of education (although it may be desirable to report them separately for some purposes), should not be relegated to a separate "adult" category outside the standard hierarchy of ISCED levels, and generally should not be reported as "not allocated by level" (UNESCO, 1976, pp. 26-27). However, the manual refers only vaguely to the borderland between education and various recreational, leisure, and cultural activities, leaving that aspect of the scope of education without an operational definition.

The UOC instructions concerning adult education not only contradict those in the ISCED manual but also are inconsistent between the UOC enrollment and finance questionnaires. The UOC enrollment questionnaire states flatly that "the data reported should *exclude* figures relating to adult and out-of-school education," but the finance questionnaire (Form UOC2) provides a separate category, distinct from the categories for regular primary, secondary, and tertiary education, specifically for reporting adult education expenditures. No definition of adult education is provided. Any country that tried to comply with these instructions would have supplied mismatched expenditure and enrollment figures, ensuring that the amounts spent per student at certain levels would be calculated incorrectly.

The INES instructions for EAG1 and EAG2 conflicted with both the ISCED and the UOC instructions by calling for the exclusion of adult education from both the enrollment and the expenditure statistics. No definition of adult education was provided. Nor were countries told how to separate and subtract expenditures for adult education in cases where adult and regular education are provided by the same institutions. The EAG3 instructions reversed the exclusion policy (see below), bringing INES into conformity with the guidelines in the ISCED manual but leaving it still in partial conflict with UOC.[14]

Given the differences among national definitions of adult, continuing, and out-of-school education, it is easy to see how directions either to omit these forms of education or to separate them statistically from regular education would result in inconsistent reporting. Referring specifically to EAG2, the directive to exclude adult education expenditures from expenditure figures elicited these diverse responses: Some countries failed to exclude adult education spending (i.e., failed to comply) because such spending was not statistically separable from other spending of the same institutions. Some made no special effort to exclude adult education spending but nevertheless did exclude a portion of such spending by default, because their separate adult education institutions were not covered by national education statistics. Several countries did attempt to exclude adult education expenditures as instructed, but the exclusions were limited in most instances to expenditures of separate adult education institutions (or administratively separate adult education components of institutions). Finally, some countries over-responded to the instruction to exclude by using part-time status as a proxy for nonregular education and subtracting all part-time enrollment and the corresponding expenditures from their data. Thus, the interaction among (1) differences in national definitions, (2) differences in institutional structures, and (3) confusing and incomplete instructions from the international agencies has resulted in widely varying statistical coverage of expenditure for (and enrollment in) adult and continuing education.

Findings Concerning Individual Countries

The following comments on individual countries reflect not only the findings of the comparability case studies but also the countries' responses to questions on adult education in a special "Quick Survey" conducted by the INES project in 1993. Except where otherwise indicated, the information pertains to data submitted to OECD for EAG2.

Australia. Adult and continuing education are considered two distinct activities in Australia. The former includes recreational, leisure, and personal enrichment courses, generally, though not always, for persons 15 years of age or older. It is offered through many types of public and private institutions, including secondary schools; technical and further education (TAFE) colleges; special divisions of universities called adult continuing education centers, worker education associations, and councils of adult education; neighborhood houses; and other separate institutions. Continuing education is considered part of the regular education system. In particular, a sizeable amount of the training provided by TAFE institutions (continuing occupational education, training of older workers) would be classified as adult or continuing education in other countries.

Australia did not explicitly deduct any spending for adult or continuing education from its expenditure figures for EAG2. In the case of continuing education, all expenditures and enrollments were included, along with other expenditures and enrollments of TAFE and tertiary institutions. Nevertheless, the coverage of adult education was incomplete in several respects. For example, only partial data were available on specialized adult education institutions, including those attached to tertiary institutions. Adult education enrollments in institutions below the tertiary level were omitted from the Australian data because the enrollment figures covered full-time students only; however, the corresponding costs probably were included, thus introducing errors into the calculations of expenditure per student. The combination of data gaps and the lack of any method for separating expenditures for regular and continuing education would make it difficult for Australia either to systematically exclude or to comprehensively cover all adult/continuing education spending.

Austria. Austria does not have general or comprehensive definitions of adult and continuing education but does have numerous activities fitting those descriptions. A system of "second chance" education provides students with opportunities to complete regular upper-secondary education (academic or vocational-technical), upgrade their job qualifications, and attend technical college. The service providers include separate upper-secondary schools and technical institutes (offering mainly evening courses), regular secondary and tertiary institutions, local governments, chambers of industry and labor, and various private sponsors. However, no university-level education is classified as adult education or even as part-time education in Austria.

Austria has reported the expenditures of separate adult education institutions as adult education expenditures in UOC2. Following the INES instructions, however, Austria excluded these amounts from the data submitted for EAG2. In several other respects, the Austrian data on adult/continuing education outlays are incomplete. The missing items include some expenditures by chambers of employers and labor, probably some adult education expenditures of the Länder and localities, certain expenditures of the Ministry of Labor and Social Affairs, and most costs of privately sponsored adult education. Enrollments in adult/continuing education appear to have been reported for several types of institutions for which the corresponding expenditure data are lacking. Finally, the Austrian statistics include some expenditures for adult/continuing education in regular secondary and tertiary institutions that would be difficult to separate from regular expenditures for the same levels of education.

Canada. Canada has no standard national definition of adult and continuing education; individual provinces (and sometimes individual institutions) are free to define these categories for themselves. Nevertheless, there is general agreement that the terms describe such activities as pursuit of secondary credentials by persons 17 years of age or older, part-time participation in personal interest courses, and job-related instruction or training, whether aimed at a credential or not. More generally, almost anything other than regular, full-time pursuit of a degree or certificate could be classified as adult/continuing education. Courses labeled adult or continuing education are offered by secondary institutions, municipalities, health institutions, community colleges, trade and technical schools, universities, and separate adult education institutions.

Expenditures for adult education provided in secondary schools by local school boards are separated from regular primary-secondary expenditures in Canada's internal statistics. Similarly, expenditures for adult or continuing education of vocational-technical institutes and community colleges are accounted for separately in Canada's survey of such institutions. Only certain specialized institutions are not covered. In addition, Canada administers a national Adult Education and Training Survey, in which households are asked to list their training or education activities (courses, private lessons, correspondence courses, workshops, on-the-job training, apprenticeship training, arts, crafts, recreation courses, etc.) and to identify the service providers and sources of funds. These data sources would seem to make Canada better equipped than most countries both to define adult/continuing education in whatever manner seems desirable for a particular data collection and to distinguish between spending for adult/continuing education and spending for regular programs. In preparing its EAG2 and EAG3 data submissions, however, Canada did not distinguish between adult/continuing and regular education and did not deduct any expenditures for the former; rather, it has included such outlays in its expenditure figures for secondary and tertiary education.

France. The general French term for adult, continuing, and other nonregular education is education *extra-scolaire*, the apparent source of the English "out of school." Such education is provided by a wide variety of public and private institutions, including secondary schools, universities and other institutions of higher education, public institutions specializing in nonformal education, internal training centers of public and private organizations, and schools managed by chambers of commerce and industry. Nearly all *extra-scolaire* education is part time, and nearly everything except full-time, full-year education is considered nonregular.

Each type of institution provides separate enrollment and expenditure figures for its *extra-scolaire* activities. France has included all expenditures for these activities in its UOC2 submissions, mainly under the heading of adult education. To comply with the then-operative INES instructions, however, it excluded all such outlays from the data submitted for EAG2 (as a result of which France's INES and UOC expenditure figures differed substantially). Correspondingly, France has not included any part-time students in the enrollment data supplied to INES. The excluded *extra-scolaire* expenditures amount to no less than one-ninth of total national spending for education.

Germany. Although Germany does not have a general or comprehensive definition of adult and continuing education, it applies these labels to a variety of activities and institutions. Among the suppliers of adult/continuing education are general and vocational-technical secondary schools, more advanced technical schools classified as non-university tertiary institutions, secondary evening schools and colleges for adults, adult education centers (*Volkshochschulen*), and various schools and training centers run by churches, chambers of industry or commerce, and labor unions. Continuing education is also understood to include employer-provided training of employees. However, institutions of higher education are not considered providers of adult/continuing education services.

Germany's expenditure statistics cover adult/continuing education provided by regular secondary and tertiary institutions, but only the portion of such expenditure accounted for by institutions devoted exclusively to adult education is readily identifiable. The data available for EAG2 generally covered only public funds for adult education; private funds (tuition payments) were omitted. Finance data are not available for some of the institutions organized outside the public sector. Germany included even separable adult/continuing expenditures in its UOC2 and EAG2 data submissions (the INES instructions to the contrary notwithstanding). As already mentioned, Germany also included expenditures for continuing training in industry in its earlier INES submissions but subsequently has excluded such spending.

Netherlands. Depending on the context, the Netherlands can be said to define adult education either broadly or narrowly. The narrow definition covers such "nonregular" activities as basic education for adults, primary education for immigrants, part-time secondary education (mostly evening classes), part-time secondary education for working youth who still qualify for compulsory education, and education through correspondence courses. The broad definition, used by national statisticians, is education "for persons for whom education is not the main activity"--in other words, part-time education. Adult education in the latter sense is provided by a variety of public and private institutions, including general and vocational-technical secondary schools, tertiary institutions, the open university and other distance learning institutions, and other types of training institutes and facilities for informal education.

Data are available on the expenditures of specialized adult education institutions, but these account for only a small fraction of spending on adult education broadly defined. It is difficult to identify costs associated with part-time "adult" students in institutions that also serve full-time regular students. Nevertheless, the Netherlands excluded the estimated cost of all part-time education from its INES data for EAG1. For EAG2, however, the Netherlands statisticians altered their practice (partly in response to preliminary findings from this study) and included outlays for those part-time or adult programs deemed to be identical or equivalent to programs in full-time education.

Spain. Adult education is defined as part-time education (including distance education) for persons 18 years of age or older. It includes education aimed at literacy, upper-secondary completion, vocational education, and preparation for university admission of persons over 25 years of age. Adult education is offered in public and private secondary institutions, separate adult education institutions, and various private institutions, including church-run centers. No university-level education is classified as adult education.

The only adult/continuing education that can readily be separated in national statistics is that which occurs in a separate adult education institution or is otherwise administratively distinct. Even then, data on the adult/continuing education expenditures of private institutions are lacking. Although Spain has both a survey of private school expenditures and a survey of household expenditures for education, these surveys do not consistently identify adult/continuing education outlays. For this reason, Spain did not attempt to exclude expenditures for adult/continuing education from its INES submissions but instead combined them with expenditures for regular (mainly secondary) education. In addition, Spain's omission of part-time enrollment (much of it adult enrollment) from the enrollment data submitted for EAG2 has created a problem of incompatibility between the enrollment and expenditure figures.

Sweden. In Sweden, adult/continuing education is a broad, national educational movement aimed at persons 20 years of age or over. Its offerings are parallel to those of regular education, except for the university level. The main components of the Swedish adult/continuing education system are *formal adult education* (basic, upper-secondary, and supplemental), provided primarily by municipalities; *popular adult education*, offered through folk high schools and through study circles under the aegis of adult education associations; *labor market training*, which may be either separately organized or offered through non-university tertiary institutions; and *continuing education of workers*, a broad category that includes education offered by employers and labor organizations.

Sweden's national statistics can provide a relatively detailed portrait of most but not all parts of the adult education enterprise. Because most adult education occurs outside the regular education system, most adult education enrollments and expenditures can be identified separately. The main exception is that adult education expenditures can only be estimated for the non-university tertiary institutions. Expenditure data for some providers are limited to funds from public sources; also, the enrollment data may be incomplete. Sweden excluded the enrollment and expenditures of separately administered adult/continuing institutions (which account for the great bulk of the country's adult/continuing education spending) from its EAG1 and EAG2 submissions. However, this policy was altered for EAG3, when data for certain types of adult institutions were included. Sweden has consistently defined all higher education enrollees as regular students regardless of age or actual degree of participation, so no expenditures for that level are identified as outlays for adult/continuing education.[15]

United Kingdom. Although the United Kingdom has no general or comprehensive definition of adult/continuing education, some UK institutions are explicitly identified as providers of adult or continuing education services. These include adult education centers belonging to the further education (FE) system, extramural departments of institutions of higher education (HE), and centers maintained by the Workers's Educational Association and various private bodies. The difficult classification issue in the UK concerns the portions of FE and HE that, though not designated adult or continuing education, might qualify as such under definitions based on student characteristics, purposes, and part-time status. The UK has far higher percentages of part-time post-compulsory students than any other country studied (71 percent of all students ages 16 and older in 1991). This makes it extremely difficult to differentiate meaningfully between adult/continuing education and part-time regular education.

The UK enrollment data cover all FE and HE students, full-time and part-time, including those in adult education programs. However, the expenditure data for the same sectors are incomplete because, like other UK finance data, they include only funds provided by the public education authorities (see Chapter 5). Student fees, which are important in adult education, have been omitted. The UK excluded the expenditures (and enrollments) of its adult education centers from its INES submissions for EAG1 and EAG2. The expenditures of extramural departments of HE institutions, though not explicitly excluded, were largely excluded in practice because they are financed with funds from private sources. However, the great bulk of FE spending, including the portions reasonably construable as outlays for adult/continuing education, has been included in the UK's international data submissions.

United States. The terms adult and continuing education are used frequently in the United States, but there is no standard definition or clear basis for a statistical separation from regular education. Narrowly defined, adult education includes basic literacy and secondary completion programs operated by local education agencies (LEAs), separate extension or continuing education programs of tertiary institutions, and programs operated by local governments and various private providers. However, a definition based on some combination of student characteristics, purposes, and part-time status would cover a much larger portion of the activity of tertiary institutions, especially the two-year community colleges.[16]

The U.S. data on adult and continuing education are limited, even from the perspective of the narrow definition. LEA outlays for adult education are covered and reported separately from regular expenditures, but tertiary expenditures for designated adult/continuing programs are covered only fractionally and generally cannot be separated from other expenditures of the same institutions. Most expenditures of specialized adult/continuing education institutions have been omitted. The U.S. has conducted a special survey in which adult education was defined, very expansively, to include all part-time, post-compulsory education for individuals 16 years old and over. No corresponding expenditure data are available, but the survey results leave little doubt that so broad a definition would cover a substantial fraction of all U.S. postsecondary education. For its EAG2 submission, the U.S. excluded the adult education outlays of LEAs and omitted, for lack of data, the expenditures of providers outside the regular education system and expenditures for "non-credit" adult programs at tertiary institutions. However, the U.S. figures on expenditures of tertiary institutions include large amounts that would qualify as adult/continuing education expenditures by most countries' definitions, including substantial outlays for part-time education of older students, especially in two-year colleges.

General Findings and Implications for Comparability

Countries vary greatly in how they define adult, continuing, or "nonregular" education. While there is wide agreement that basic literacy education, programs for secondary school completion, personal interest and recreational courses, etc. belong in the adult education category, these items are relatively unimportant. The more significant definitional differences among countries occur in three areas:

- *Occupational training.* Formal occupational training (initial and/or continuing) pursued by persons beyond regular school age is classified as adult/continuing education in some countries but is not differentiated from regular secondary or tertiary education in other countries.
- *Part-time education.* Some countries recognize part-time study as a normal method of participating in regular programs and earning regular secondary or tertiary qualifications, while others treat part-time study as an activity outside the regular education system.
- *University-level education.* Some countries recognize university-level institutions as important providers of adult/continuing education, while others treat all participants in university (ISCED 6/7) education as, by definition, regular tertiary students.

National statistical systems reflect both these definitional differences and the limited ability of existing finance data collection systems to separate adult/continuing education from so-called regular education. Only a few countries set out to collect and report comprehensive, systematic information about the adult/continuing education sector on a recurrent basis. Most countries lack formal definitions of adult/continuing education and have data organized by level and type of institution. Consequently, except insofar as adult/continuing education occurs in separate institutions, these countries must manipulate their institution-based data to generate separate adult education statistics. Even when the data systems can identify adult/continuing enrollments, they often cannot identify the corresponding expenditures. For example, some countries classify and report part-time enrollees in regular upper-secondary vocational schools as adult/continuing students but are unable to separate the costs of full-time and part-time study. Other countries do not even attempt to identify adult education enrollees in vocational schools because they do not view initial job preparation as adult education regardless of the age or the part-time status of the participants.

Turning specifically to the INES submissions for EAG2, we find that countries have omitted portions of their adult/continuing education expenditures for either or both of two reasons: (1) the data were not available, or (2) the data providers excluded some expenditures deliberately, in accordance with the then-operative instructions. Four of the ten countries covered by this study--Australia, Canada, Germany, and Spain--did not exclude any adult education expenditures deliberately; however, substantial amounts of adult education spending were missing from the Australian, German, and Spanish data, and hence were excluded anyway. Four other countries--Austria, the Netherlands, the United Kingdom, and the United States--deliberately excluded from their expenditure figures certain relatively minor expenditure items identified as spending for adult/continuing education, but these intentional exclusions generally were minor compared to larger (but nonquantifiable) omissions due to lack of data. In the case of Sweden, expenditures of separate adult education institutions accounted for the greater part of adult/continuing education expenditures and were intentionally excluded. Finally, in the case of France, estimated expenditures of all types of institutions for *extra-scolaire* education, broadly defined to include almost any education not full-time and full-year, were excluded.

The amounts of spending for nonregular education explicitly excluded from countries' EAG2 data submissions range from zero to one-ninth of total national education spending (the latter referring to France). However, this range does not reflect the unknown amounts of such spending not covered by national data systems, and hence not available to be excluded. The implications for comparability are straightforward: The expenditures of countries whose finance statistics cover adult, continuing, and other nonregular education more completely will be exaggerated relative to those of countries that cover the same categories of education less completely. It makes no difference, in terms of comparability, whether the differences in coverage stem from differences in data availability or from the deliberate decisions of some countries to exclude nonregular education activities from their statistics.

Changes to Date and Options for Improvement

It became clear during the work on EAG2 that the then-operative INES instruction to exclude adult education expenditures and enrollment was untenable. Given the countries' diverse definitions and their different degrees of reliance on regular and specialized institutions to deliver adult/continuing education services, asking each country to exclude its expenditures for adult and continuing education virtually guarantees noncomparable statistics. Even if standard international definitions of adult/continuing, regular, and nonregular were developed, that alone would not solve the comparability problem. Difficulties arise not only because of conceptual and definitional differences but also because the structures of national education systems vary in ways that limit the statistical possibilities. For instance, the dissimilar role that part-time education plays in different countries--an integral part of the regular education system in the English-speaking countries but a nonregular appendage in most continental European countries--is an element of reality that changes in definitions cannot overcome.

The INES response to the unsatisfactory results of attempting to exclude adult education was to shift, at least for EAG3, to the almost diametrically opposed policy of near-full inclusion of adult education in the expenditure (and other) statistics. The pertinent EAG3 guidelines (OECD, 1994) may be paraphrased as follows:

1. Countries should include their expenditures for forms of adult and continuing education that are substantively comparable or equivalent to education for students not classified as adults.
2. Expenditures for adult and continuing education should be included regardless of whether that education is provided by regular educational institutions or specialized adult/continuing education institutions.
3. Expenditures for adult and continuing education should be assigned to the most appropriate ISCED levels, not reported separately or as expenditures "not allocated by level."
4. In principle, expenditures for leisure, recreational, and cultural activities should not be included (this implements the criterion of substantive equivalency to regular education).
5. Only expenditures of or for educational institutions should be included. Employer-provided training of workers in the work place should be excluded.

Responding to the revised instructions, several countries broadened the coverage of their EAG3 statistics to include previously omitted categories of spending. For instance, Sweden added the expenditures of some (but not all) of its separate adult education institutions, and France included the *extra-scolaire* expenditures that it had deliberately excluded from earlier submissions. These additions (mainly to spending for secondary education) contributed to comparability. However, some new questions arose about the criterion of "equivalency" of adult and regular education and the boundary between includable adult education and excludable leisure, recreational, and cultural activities.

To address the latter concerns, the more recent UOE instructions attempt to define the concept of equivalency to regular education more precisely (and somewhat more narrowly) by providing the following guideline (OECD, 1995b):

> Educational activities classified as "adult" or "non-regular" education . . . should be included in the statistics provided that the activities involve studies that have a subject matter content similar to regular education studies or that the underlying programmes lead to similar potential qualifications as corresponding regular educational programmes . . . .

Whether this elaboration will help to resolve or will add to the lingering definitional uncertainties remains to be seen.

The change in OECD's policy from one of exclusion to one of inclusion of adult/continuing education expenditures helps to alleviate a significant comparability problem. It avoids the need to deal with countries' varying ability to separate expenditures for adult/continuing education from other expenditures and goes some distance toward ensuring that countries do not exclude noncomparable portions of their overall educational enterprise from future data submissions. But switching to a policy of inclusion does not solve all the problems of classification and measurement. In cases where countries maintain separate adult/continuing education institutions, it remains necessary to specify which types of previously excluded service providers should now be brought into the statistics. A sharper line has to be drawn between adult education and mainly cultural or recreational activities. On the occupational training front, a more precise distinction is needed between education and employer-provided training. Difficulties can be expected in classifying adult/continuing education expenditures by ISCED level in cases where the education in question does not correspond to offerings in the regular education system. The problem of translating part-time adult/continuing education enrollments into full-time equivalents requires serious attention (see

Chapter 10). The question of whether it is necessary, as a practical matter, to exclude certain types of informal and privately provided adult education has to be examined. But although some definitional problems remain in these areas and some new problems will arise, they are likely to be less troublesome than the problems of the past.

The degree to which comparability will be enhanced by the policy of inclusion now depends on the behavior of the national data providers. The easy part of their task is to include previously excluded adult education expenditures in future data submissions. The more difficult part is to fill the current gaps in data on education outside the regular system. How thoroughly the latter can be accomplished depends on the willingness of the countries concerned to extend the coverage of their statistics systems into previously uncharted domains of nonregular education.

A final point concerns the prospects for eventually developing valid international comparisons of adult/continuing education itself. Interest in such comparisons is growing, reflecting the new emphasis in many countries on lifelong learning and continual upgrading of the labor force. The improvements outlined above will not, by themselves, yield statistics suitable for comparing countries' investments in adult/continuing education. They are aimed only at the more limited objective of ensuring that disparate coverage of nonregular education does not detract from the comparability of statistics on education spending as a whole. To compare spending for adult/continuing education itself, it would be necessary to confront, not to avoid, the issue of how expenditures for regular and nonregular education can be separated. For the moment, such comparisons are beyond the state of the art. Much conceptual and developmental work would have to be done to determine whether they may eventually be feasible.

Notes

1. Note, however, that these expenditures appeared only as part of total spending for ISCED 0-3, because Canada had not disaggregated its data to show preprimary expenditures separately.

2. The early childhood institutions of Sweden provide mixes of educational and child care services extending over 12 or more hours per day. In some cases, different personnel from those who might be considered teachers provide the extended day and evening child care services. A further complicating factor is that the same institutions often serve children from birth to age seven, making it necessary to distinguish between infants (ages zero to two or three) and children who might reasonably be viewed as participants in preprimary education.

3. Note that the United States generally lacks statistics on the finances of private preprimary, primary, and secondary education. It has developed very rough expenditure estimates for the whole private-school sector, portions of which are allocated to the kindergarten level, and hence to preprimary education.

4. Sweden's reported expenditures for preprimary education, along with those of the other Nordic countries, increased by a factor of three or four when these countries adopted the new approach, in time for the EAG3 data collection, of reporting all expenditures attributable to children three and older.

5. Apprenticeship arrangements of the dual-system type also appear to play large roles in Hungary and the Czech Republic, which, though not OECD member countries, have been participating in the work of the INES project and have submitted financial and other statistics for EAG3.

6. In an Austrian sample-survey study of employers of dual-system apprentices (described below), the problem was approached by asking each employer to estimate how many hours of regular employee time would be needed to accomplish work equivalent to that accomplished by the apprentices if the apprentices were not available. In the Austrian case, the result of this inquiry was a finding of no subsidy--that is, the estimated cost of hiring regular employees to perform equivalent work would equal or exceed the total compensation paid to the apprentices.

7. The sample-survey study of employers, carried out in 1991-92 by the Federal Institute of Vocational Training (BIBB, in its German acronym), updates earlier studies carried out in 1974 and 1980. It provides estimates of both direct training costs and the costs of apprentices' salaries and other forms of compensation.

8. France, for example, appears to have conducted a special exercise to estimate the costs of apprenticeship programs in 1988. The results are reported in internal statistical publications (*Ministère de l'Éducation Nationale*, 1993) but have not been reflected in the expenditure statistics submitted to international agencies.

9. The net effect of excluding both employers' expenditures for apprenticeship programs and the corresponding share of full-time-equivalent enrollment probably would be to underestimate the upper-secondary expenditures of countries relying on the dual system relative to those of countries relying on school-based vocational-technical training. The reason is that the former countries would have excluded their higher-cost forms of vocational-technical training (i.e., apprenticeship), whereas the high unit costs of the counterpart school-based programs would be retained in the latter countries' figures.

10. For EAG3, the adjustment of full-time-equivalent enrollment was made only for Austria. A comparable adjustment was proposed for Switzerland, but the Swiss authorities preferred instead to exclude their figures from the international comparison of upper-secondary expenditures per student.

11. The results of the aforementioned Austrian sample-survey study actually suggested a modest net cost to the student--that is, compensation less, on average, than the value of the students' contribution to production--leading some to raise the question of whether the students should be viewed as paying de facto tuition to the employers. But these findings are not yet well enough substantiated to justify such an adjustment.

12. In the case of Germany, the estimated employer expenditures for apprenticeship were added by the national education ministry to the expenditure figures prepared for submission to OECD. In the case of Austria, it appears that the corresponding figures still have not been included in international data submissions.

13. In the case of the United Kingdom, it appears that expenditures for YT programs are included in education expenditure statistics to the extent that the programs are operated by local education authorities. Similarly, U.S. JTPA programs may be covered in cases where educational institutions such as community colleges are the service providers. In both the UK and the U.S., however, substantial shares of the funds provided by the employment or labor agencies flow to service providers outside the education sector, and hence are not reflected in the education statistics.

14. There was some confusion in OECD's EAG3 instructions with respect to adult education enrollments, which may have led some respondents to exclude the enrollments while including the expenditures, but we have confirmed that OECD's intent for EAG3 was to exclude both.

15. In earlier data submissions, Sweden subtracted higher education expenditures attributable to students older than 29. This conformed to a since-abandoned interpretation of the coverage of education statistics, according to which participation data were limited to persons in the age range 2 to 29.

16. Large percentages of students in community colleges study part time, which alone would be sufficient to label them adult or nonregular students in some countries. In addition, many enroll only for instruction in particular subjects rather than to pursue multi-course sequences interpretable as "programs."

Chapter 4

CLASSIFICATION OF EXPENDITURES BY LEVEL OF EDUCATION*

Comparisons of total national education spending--expenditures for all levels of education combined--are interesting and dramatic. Policymakers want to know whether their own country spends a larger or smaller share of GDP than its neighbors (or its competitors) on improving its human capital. But most policy-relevant expenditure comparisons concern more limited spans of education. It is not very meaningful, for instance, to compare expenditure-per-student figures that average together everything from preschool to graduate school, but it is meaningful to compare spending per student for preprimary, primary, and secondary education; compulsory education (primary plus lower-secondary); primary and secondary education combined; all tertiary education; and university-level tertiary education. Likewise, a serious analysis of international variations in the composition of education spending--how countries differ in either sources or uses of education funds--would require separate statistics for the individual levels and combinations of levels listed above, not figures for all levels mixed together.

The importance of classification by level calls attention to the comparability of the levels themselves: Does each country mean the same thing when it uses such terms as preprimary, primary, secondary, and tertiary education? Are the boundaries between levels defined uniformly? Are educationally equivalent activities assigned to the same level in each country's statistics? If one country attaches the label "primary" to the first six years of schooling, while another country attaches the same label to only the first four years (unfortunately, a real rather than a hypothetical situation), any direct quantitative comparison of primary education between the two countries is likely to be misleading. If one country calls a certain type of vocational-technical training secondary, while another calls it tertiary (another all-too-real problem), comparisons of both secondary and tertiary spending will be incorrect. Even if the statistics on education expenditures were otherwise perfect, differences in categorization by level could preclude valid international comparisons.

---

*Several sections of this chapter incorporate material from an earlier draft prepared by Dr. Joel D. Sherman of the Pelavin Research Institute.

The purpose of this chapter is to determine how the definitions of education levels differ among countries and how such differences affect international comparisons of education spending. As background, we first describe the taxonomies of levels on which the extant international education statistics are based: the ISCED classification that underlies all the INES statistics (some aspects of which have already been discussed) and the older, somewhat different taxonomy reflected in the UOC Joint Questionnaires. We deal in sequence with the following topics: (1) inconsistent boundaries among the levels that make up the broad preprimary through secondary aggregate, (2) problems in differentiating between upper-secondary and tertiary education, (3) problems in differentiating among the constituent levels of tertiary education, and (4) the difficulties created when countries report expenditures "not allocated by level."

The ISCED and UOC Classifications of Levels

From its inception, the OECD INES project has recognized ISCED as the framework for organizing education statistics. OECD has used the ISCED taxonomy of levels of education to categorize data on education expenditures, as well as data on enrollments, personnel, graduations, and other aspects of educational systems. Along the way, it has

177

interpreted the ISCED categories, extending and elaborating (some would say modifying) the definitions laid out in UNESCO's 1976 ISCED manual. During 1995, the ISCED levels were incorporated, with further revisions and clarifications, into the new UNESCO-OECD-EU (UOE) data collection instruments, which have superseded both the UOC Joint Questionnaire and the earlier INES data collection forms.

Levels of Education According to ISCED

Perhaps the most basic ISCED principle is that ISCED is a classification of educational programs, not a classification of educational institutions. This means that programs should not necessarily be categorized according to the type of institution that provides them (for instance, a university may provide some non-university-level education) or according to the type of authority that controls them. As will be seen, many problems of inconsistent classification across countries occur when countries violate this principle by categorizing educational programs according to how they are placed organizationally or who runs them, rather than according to what type of education they provide.

ISCED classifies educational programs into seven levels spanning the range from preprimary through postgraduate education, with a residual category for education not definable by level. The structure of levels has already been outlined in Chapter 1, but it is shown in more detail in the following table (Table 4-1). The table includes, for each level, the descriptive term used in the 1976 ISCED manual, followed (in brackets) by the corresponding term used in the INES and UOE data collection instruments. It also summarizes statements contained in the 1976 manual as to the "usual" starting ages and durations of education at each level.

The characteristic of ISCED that most affects the international comparability of expenditure (and other) statistics is its lack of specificity or prescriptiveness with respect to

Table 4-1

Levels of Education According to the 1976 ISCED Manual

Level	Nomenclature	Usual Starting Age According to Manual	Usual Duration (years) According to Manual
ISCED 0	Education preceding the first level [preprimary education or early childhood education]	3, 4, or 5 (sometimes earlier)	1 to 3
ISCED 1	Education at the first level [primary education]	5, 6, or 7	5 or 6
ISCED 2	Education at the second level, first stage [lower-secondary education]	11 or 12	3 or 4
ISCED 3	Education at the second level, second stage [upper-secondary education]	14 or 15	3 or 4
ISCED 5	Education at the third level, first stage, of the type that leads to an award not equivalent to a first university degree [non-university tertiary education]	17 or 18	less than 4
ISCED 6	Education at the third level, first stage, of the type that leads to a first university degree or equivalent [university-level tertiary education (undergraduate)]	17 or 18	4 or more
ISCED 7	Education at the third level, second stage, of the type that leads to a postgraduate university degree or equivalent [university-level tertiary education (graduate)]	---	---
ISCED 9	Education not definable by level [education not allocated, or not distributed, by level]	---	---

the definitions of the individual levels. Rather than setting a specific duration or starting point for each level, ISCED allows each country to associate the ISCED categories--primary, lower-secondary, upper-secondary, etc.--with whatever stages make up the country's own organizational structure for education. This flexibility is intentional. It was introduced to accommodate the diversity of national education systems. Nevertheless, its unintended consequences for international comparisons of education are devastating.

Without violating the ISCED guidelines, different countries have defined preprimary education for statistical purposes as lasting for anywhere from one to four years, and primary education as lasting from as few as four to as many as eight years. Note in this regard that the "usual" ages and durations cited in the ISCED manual and shown in the foregoing table are not binding. Although ISCED suggests that five or six years is the usual duration of primary education, durations of four or eight years are not inadmissable. As a result, the number of years of education reflected in countries' statistics on primary education could, at the extremes, differ by a factor of two. At least as much flexibility exists at the secondary level, where countries are free, under ISCED, to present statistics covering as many as nine or as few as four years of "secondary" schooling. Moreover, although the ISCED manual states that upper-secondary education "usually" begins at age 14 or 15 and lasts three or four years, nothing in ISCED has prevented countries like Germany from including "second cycles" of upper-secondary education--programs commencing at age 18 or 19 and continuing to age 21 or 22 or beyond--in their ISCED 3 statistics. Neither policymakers nor anyone else can benefit from a comparative analysis of expenditures (or enrollment, or staffing) that treats as appropriate units of comparison the two-year program designated ISCED 3 education in one country and the five-year program so-labeled in another country. Yet such comparisons are not only allowed under ISCED but, in fact, have appeared frequently in past OECD and UNESCO statistical reports.

Definitional problems of a different kind affect the statistics on tertiary education. Defining tertiary education as a whole is not difficult (with some exceptions concerning the ISCED 3/ISCED 5 boundary, discussed later). However, the distinctions among the individual levels of tertiary education--ISCED 5, 6, and 7--are problematic. As can be seen from Table 4-1, these distinctions rest entirely on the concept of "first university degree," which itself has no internationally agreed-upon meaning and is not assigned a specific definition in ISCED. Considering the structural differences among national systems of tertiary education, it is questionable whether a workable classification criterion can be founded on the supposed equivalence of university degrees. The current ISCED framework does not prevent one country from including in ISCED 6 education that another country would classify as ISCED 5, or reporting as postgraduate education (ISCED 7) what another country would consider undergraduate study (ISCED 6).

Apart from the problems of defining and differentiating among individual levels, a more general problem with the ISCED classification is that it presumes a standard structure of education that does not correspond to the structures of all the OECD countries. The assumed structure is a sequence of stages ("ladder" is the standard metaphor), running from preprimary through primary, lower-secondary, and upper-secondary, and then extending in a branching pattern to non-university tertiary or university-level tertiary education. For a certain cluster of mainly continental European countries--France, Belgium, Germany, Austria, and Italy, among others--this model closely resembles the actual sequence of discrete stages through which most students progress. In each of these countries, one can identify specific sets of institutions and programs corresponding to each ISCED level. But for other countries, the correspondence is at best partial. Some of the stages and institutional categories recognized in certain countries have no direct or obvious counterparts in the ISCED levels, and vice versa.

National structures can differ from the standard ISCED structure in several ways. First, some countries make fewer distinctions among levels than are presumed in ISCED. The Netherlands, for example, combines preprimary and primary education (ISCED 0 and 1) into a single "basic education" sector (*basisonderwijs*). Sweden (like the other Nordic countries) integrates primary and lower-secondary education into a combined compulsory schools sector (*grundskolan*). Spain integrates the same two levels into a compulsory education sector called EGB (*educación general básica*). And in several countries, lower-secondary and upper-secondary education (ISCED 2 and 3) are treated as one integrated stage of education rather than as two separate levels.

Second, the stages recognized by some countries do not correspond to but instead overlap the levels laid out in ISCED. The stages that follow primary education in the United Kingdom, for example, are secondary education, further education (FE), and higher education (HE). The FE sector, which many students enter after completing the compulsory portion of secondary schooling at age 16, is an amalgam of elements of ISCED levels 3 and 5. The same can be said of the TAFE (technical and further education) sector in Australia and the MBO (*Middelbaar beroepsonderwijs*) sector of vocational-technical education in the Netherlands. The existence of such sectors blurs the ISCED 3/5 boundary, to the detriment of comparisons covering either level.

Third, some countries have multiple "tracks," or sequences of programs--most commonly, a general (academic) education track and one or more vocational-technical tracks. The individual stages that make up the different tracks may differ in starting age and duration. Coexisting in the Netherlands, for example, are a six-year university-preparatory program (VWO), both four-year and five-year general secondary programs (MAVO and HAVO), which prepare students for various types of advanced schooling, and a four-year pre-vocational program leading to two or three years of apprenticeship. It is difficult for countries with these multipath structures to distinguish clearly or consistently among ISCED levels 2, 3, and 5.

In sum, two basic attributes of ISCED limit its value as a framework for assembling internationally comparable education statistics. One is that ISCED fits the institutions and programs of some countries much better than others. The second is that the ISCED levels are so flexibly and nonprescriptively defined that different countries can affix the same ISCED label to programs of widely varying starting ages and durations.

The INES finance data collection instruments, though organized according to ISCED, have not called for full breakdowns of expenditure by individual ISCED level. For EAG1 and EAG2, countries were asked to provide figures for the following categories:

Preprimary education (ISCED 0)
Primary education (ISCED 1)
Secondary education (ISCED 2 + ISCED 3)
Tertiary education (ISCED 5 + ISCED 6 + ISCED 7)
Not allocated by level[1]

Note that the countries were not expected to differentiate between lower- and upper-secondary education or among the constituent levels of tertiary education. The distinction between the two levels of secondary education was added for EAG3, and a distinction between ISCED 5 (non-university tertiary education) and ISCED 6 + 7 (university-level tertiary education) has been incorporated into the 1995 UOE data collection instrument. Thus, the UOE form calls for full disaggregation by level, except for the combination of undergraduate and graduate (ISCED 6 and 7) university-level tertiary education.

Levels of Education in the UOC Joint Questionnaire

Considering that ISCED was developed under UNESCO auspices, it is surprising that the ISCED categories are not reflected fully in the UNESCO-administered Joint Questionnaires, from which UNESCO draws the data for its *Statistical Yearbook* and *World Education Report*. Instead, the UOC questionnaires (including the finance questionnaire, Form UOC2) incorporate a somewhat different classification of levels that antedates ISCED. The principal difference does not concern the set of levels per se. In fact, the UOC levels are almost the same as the ISCED (and INES) levels, except for differences in the subcategories of tertiary education (see below). The more important discrepancy for the purpose of this discussion is that in the UOC schema certain educational activities--special education, adult education, and unspecified other types of education--are not included in the regular levels but instead are placed in separate categories of their own. Thus, the main headings of the UOC taxonomy are as follows:

A. Education preceding the first level
B. First level education
C. Second level, 1st stage education
D. Second level, 2nd stage education
E. Third level education
    a. Universities and equivalents
    b. Distance-learning institutions
    c. Non-university tertiary education
F. Special education
G. Adult education
H. Other types of education
I. Education not distributed by level

According to ISCED, there are no activities outside the main hierarchy of levels. All forms of education are to be assigned to ISCED categories 0 to 3 and 5 to 7, or if necessary, to the residual category, ISCED 9.[2] This structural difference has led to some significant discrepancies between the INES and UOC data. For instance, although the categories A to D shown above bear the same names as ISCED levels 0 to 3, respectively, they are not equivalent because the special, adult, and "other" components of education at each level have been excluded and placed in the separate categories F, G, and H. Therefore, all else being the same, one would expect a country to report somewhat less spending in UOC2 categories A, B, C, D than it reports in ISCED categories 0, 1, 2, 3.[3]

In addition to deviating from ISCED, the introduction of separate categories for special, adult, and "other" education has damaged the comparability of the UOC2 statistics themselves. As explained in Chapter 3, countries vary widely both in how they define adult education and in their ability to separate expenditures for adult education from expenditures for regular programs. Consequently, countries will differ in how they divide expenditures between the main UOC2 levels and the separate category for adult education. Similarly, because countries vary in the degree to which they have integrated special education with regular education, they will allocate expenditures inconsistently between the main UOC levels and the separate special education category. In this respect, the UOC structure incorporates a built-in threat to comparability that the INES/ISCED structure avoids.

Apart from the structural differences, the mere fact that two partly conflicting taxonomies of levels have coexisted has had some negative effects on international comparisons. Although the INES and UOC data collections have been conducted separately, the tasks of responding to the two have often been intertwined or merged within the individual countries. After years of filling out Form UOC2, some national data providers continued to view it rather than the newer INES forms as the primary vehicle for reporting expenditure data. Some data providers generated the UOC statistics first and then derived the INES data from them. Consequently, some UOC problems spilled over to INES. For instance, some countries persisted in classifying spending for special, adult, and "other" types of education as "not allocated by level" (ISCED 9)--the INES instructions to the contrary notwithstanding--because they were accustomed to reporting such outlays separately in UOC2. (Other carryovers from UOC2 are discussed in later chapters.) Now that Form UOC2 has been superseded by the UOE finance questionnaire, the influence of the UOC structure is likely to fade. However, it was important and unmistakable during the period covered by this study.

Problems in Defining the Constituent Levels of Primary and Secondary Education

According to ISCED, primary-secondary education is to be disaggregated into three levels: primary (ISCED 1), lower-secondary (ISCED 2), and upper-secondary (ISCED 3), the latter two of which, taken together, make up the secondary education sector. The combined effect of nonprescriptive ISCED guidelines and diverse national education structures has been to make the boundaries between these levels internationally inconsistent. Consequently, the expenditure (and other) statistics pertaining to the individual levels--ISCED 1, ISCED 2, ISCED 3, and the combination of ISCED 2 plus ISCED 3--sometimes are not comparable, across countries. The following discussion covers these aspects of the problem: (1) differences in the starting age of primary education, (2) differences in the nationally defined durations of primary, lower-secondary, upper-secondary, and all secondary education, (3) deviations from the structure of education presumed in ISCED, and (4) the absence, in some cases, of national statistics disaggregated by ISCED level. The problem of different starting ages and durations of preprimary education would also fit logically into this discussion, but it is omitted because it has already been examined in Chapter 3.

Differences in the Starting Age of Primary Education

To the extent that the starting age of primary education varies, children who would be considered primary pupils by one country may be classified as preprimary pupils by another country; however, the problem is not a major one because variations in the starting age are relatively limited. In most of the countries examined, primary education (and with it, compulsory schooling) normally begins at age six. The exceptions are that children in the United Kingdom start primary education at age five, as do some children in Australia, while children in Sweden (and the other Nordic countries) do not start primary education until age seven. Therefore, in a comparison of expenditures across countries, expenditures for five year-olds will be counted as spending for primary education in the United Kingdom (and to some degree in Australia) but as spending for preprimary education in most other countries. Similarly, the costs of serving six year-olds will be counted as preprimary expenditures in the Nordic region but as primary expenditures in most other countries.

Taking the position that the ultimate classification criterion should be the content of the education in question (and perhaps, in the case of primary education, its compulsory character), one might argue that the difference in starting age poses no comparability problem at all. Primary education can be said to refer to education of a certain substantive character, regardless of whether that education commences at five, six, or seven years of age. Therefore, one could legitimately compare total or per-student spending for primary education across countries (assuming away differences in duration for the moment) even if the countries have different starting points for compulsory primary schooling.

Nevertheless, there is no doubt that differences in starting ages do create difficulties for some types of expenditure comparisons. For example, consider a comparison of the allocation of resources by level between the United Kingdom and Sweden. Assuming that children in both countries enter preprimary programs at age three, children in the UK have only two years to attend preprimary school before beginning compulsory primary schooling, while children in Sweden have four years. Assume further that primary education then goes on for six years in both countries and, for simplicity that 100 percent of children three and older are enrolled in each country (which, of course, is not true) and that spending per pupil is the same at the preprimary and primary levels. Taking each country's breakdown of spending by level at face value, one would conclude that only 25 percent of the total resources devoted to preprimary and primary education combined goes to preprimary education in the UK (two years out of eight), whereas 40 percent goes to preprimary schooling in Sweden (four years out of ten). While this result would be correct in one sense, it would be misleading in another. It would suggest that Sweden channels a larger proportion of its resources to serving the youngest children, whereas the reality, under our assumptions, would be that both countries spread resources uniformly over all children from age three to whatever each country considers the end of primary schooling.

In this example, the difference in national definitions of the preprimary/primary boundary creates the impression that one country favors early childhood education more strongly than the other, but an analysis of resource allocation by age would yield a contrary conclusion. The only evident method of correcting for this element of noncomparability--assuming that a correction is called for--would be to impose a definition of preprimary education based on a specified standard age. To date, this has not been done in ISCED, and it is questionable whether doing so would be acceptable or desirable. Fortunately, only a few countries' starting ages deviate from the six year-old norm.

Differences in the Duration of Primary and Secondary Education

Luckily for those interested in international comparisons of education, the duration of all primary-secondary education (ISCED levels 1, 2, and 3 combined) varies only slightly across countries. Most commonly, it is 12 years. In some countries it is 13 years for students preparing to enter institutions of higher education but 12 years for students in "terminal" programs (e.g., Germany, Switzerland). In a few countries, some students pursue programs with a cumulative primary-secondary duration of only 11 years (e.g., Ireland and Canada's Quebec province). Some countries operate so-called upper-secondary vocational-technical programs that involve a cumulative duration longer than 13 years, but this phenomenon seems to reflect mainly inconsistent definitions of the secondary-tertiary boundary (a topic discussed separately below). Therefore, unequal duration is only a minor problem in comparing expenditures for all primary and secondary education combined across countries.

Unfortunately, the same cannot be said of comparisons pertaining to primary, secondary, lower-secondary, or upper-secondary education by itself. In general, each country has its own approach to differentiating these levels from one another. Whereas some countries have distinct sets of institutions or programs to which they can affix the primary, lower-secondary, and upper-secondary labels, other countries do not. Among the countries whose programs or institutions can be sorted easily among ISCED levels 1, 2, and 3, there is no uniformity with respect to the starting point or duration of each stage of primary-secondary schooling. As a result, the generally favorable conditions (in terms of rough equality of duration) for international comparisons of primary-secondary education as a whole do not carry over to comparisons of the individual ISCED levels.

The duration of primary education generally varies from four to six years among the OECD countries (although the United States and Canada have some primary, or elementary, schools that serve students for up to eight years). Primary education lasts four years in Austria and Germany; five years in France and Italy; and six years in Japan, the Netherlands, and the United Kingdom. These variations essentially preclude direct comparisons of total primary spending. In a comparison of expenditure for primary education relative to GDP, for example, a country with six years of primary education would appear, other things being equal, to be spending about 50 percent more than a country with only four years of primary education; but this result would reflect only definitional differences, not real differences, between the countries, and hence would be totally misleading.

The durations of lower-secondary education, upper-secondary education, and all secondary education also vary among countries. To complicate matters, the durations of general (or academic) secondary education and vocational-technical secondary education (and sometimes even of different forms of vocational-technical secondary education) often differ within the same country. Because the combined duration of primary and secondary education is almost constant (plus or minus one year) across the OECD countries, the durations of the primary stage and the secondary stage are inversely related. Germany and Austria, which claim only four years of primary schooling, view secondary schooling as an activity lasting eight or nine years. In contrast, most countries that define primary education as a six-year program view secondary education (more specifically, general secondary education) as also a six-year endeavor. In some instances, general secondary education is considered to last as few as four or five years (e.g., in some Canadian provinces, Australian states, and U.S. school districts). Thus, the range of variation in the duration of general secondary programs, as defined by the individual countries, is more than two to one.

The durations of lower-secondary (ISCED 2) and upper-secondary (ISCED 3) education are similarly variable. For example, students typically attend institutions designated lower-secondary for three years in Ireland, Italy, and Japan; four years in Austria and France; five years in the United Kingdom; and six years in Germany. The variations at the upper-secondary level are more difficult to summarize because of the multiplicity of secondary programs. Programs designated general or academic (university-preparatory) upper-secondary last only two years in some countries (Australia, Ireland, and the United Kingdom), three years in others (France, Germany, and Japan), and four to five years in still others (Austria, Spain, Belgium, and Italy). Vocational-technical programs can last anywhere from one to five or more years, sometimes with as much variation within a country as between countries.

This diversity makes it impossible to provide meaningful answers to such reasonable-sounding and policy-relevant comparative questions as "How does the percentage of GDP

BEST COPY AVAILABLE

devoted to secondary education vary among countries?" and "How do countries differ in the proportions of total primary-secondary resources devoted to primary, lower-secondary, and upper-secondary education?" Recognizing the problem, the INES project abandoned direct comparisons of primary and secondary shares of total spending after EAG1, replacing them with comparisons of shares of spending relative to the corresponding shares of enrollment.[4]

A complication affecting the statistics of such federal countries as Canada, the United States, and Switzerland is that the structure of education, and hence the duration of each level of schooling, varies among regions or localities. In Canada, primary education is as short as five years in some provinces but as long as eight years in others, while secondary education lasts, correspondingly, from seven years to four. In the United States, the duration of elementary (primary) education varies not only among the states but also among, and sometimes even within, local school districts. It can be anywhere from four to eight years. The duration of secondary education is correspondingly variable, maintaining the combined length of primary and secondary schooling at twelve years. Primary education in Switzerland can last four, five, or six years, depending on the canton; the duration of secondary education varies in a complementary manner to maintain the combined duration at thirteen years.

Countries faced with this degree of internal variation have two options for developing national statistics that differentiate between primary and secondary schooling: They can either aggregate the activities that the individual states or provinces have labeled primary and secondary, disregarding the variations among state or provincial definitions, or they can impose a standard definition specifically for purposes of national data collection--for instance, calling the first six years of schooling primary. Neither option is entirely satisfactory, but the latter has the advantage that the levels are better-defined, hence more readily interpretable in an international context.

Structural Variations, Non-Disaggregated Statistics, and Allocations of Expenditures

Two additional obstacles to consistent categorization by ISCED level are (1) the aforementioned deviations of some national education structures from the sequential structure of levels presumed in ISCED, and (2) the fact that some countries' national statistics on expenditures for ISCED 0-3 education are not fully disaggregated by ISCED level but instead provide data for two or more ISCED levels combined. These problems are interlinked in two ways: First, countries whose structures feature integrated institutions spanning two ISCED levels are unlikely to have expenditure data for the individual levels. Second, countries whose statistics are not fully disaggregated by level (whether for structural reasons or because of the limitations of data collection systems) have to depend on estimates or allocations to report spending by individual ISCED level.

Several types of deviations of national education structures from the structure implicit in ISCED add to the difficulty of developing internationally comparable statistics for individual ISCED levels. A country with integrated, two-level institutions is likely to have expenditure statistics covering only the two levels of education combined. To report spending by individual ISCED level, such a country must allocate, or prorate, the combined outlays between the individual levels in question. For EAG2, the Netherlands apportioned its spending for *basisonderwijs* between ISCED 0 and ISCED 1. Sweden allocated the expenditures of its *grundskolan* between ISCED 1 and 2 (and the other Nordic countries did the same with their integrated compulsory-education institutions). Spain did likewise with its expenditures for *educación general básica*. The United States divided the expenditures of its elementary schools between ISCED 0 (kindergarten) and ISCED 1 (but as part of a larger allocation process, described below). Beginning with EAG3, several countries have also had to partition the expenditures of their integrated secondary institutions to comply with INES's request for separate ISCED 2 and 3 data. In each such instance, the comparability of the resulting disaggregated expenditure figures depends on the adequacy of the allocation method.

Similarly, in cases where a country's own institutions or programs overlap rather than match ISCED levels, the only way for the country to report spending by ISCED level is to disaggregate its own expenditure categories and then reassemble the pieces according to ISCED categories. In what may be the most difficult case, the United Kingdom has had to develop estimates for ISCED 2 and ISCED 3 by piecing together portions of the spending of comprehensive secondary institutions, middle schools, other types of secondary institutions, and further education colleges. Australia and, to a lesser extent, the Netherlands also must engage in similar manipulations. Again, the validity of the allocation method is crucial.

In other situations, the need to allocate expenditures by ISCED level is not due to structural factors but rather to the limitations of national statistical systems. The United Kingdom's statistics, for example, merge expenditures for public nursery (ISCED 0) and primary (ISCED 1) education, even though the two levels are usually institutionally separate. Consequently, the combined spending figures must be prorated into separate ISCED 0 and ISCED 1 components. Similarly, even though Austria and Germany have separate primary and lower-secondary institutions, they normally collect expenditure data for the two categories combined (i.e., expenditure for compulsory schooling). Consequently, they must rely on allocation procedures to generate separate expenditure figures for ISCED 1 and ISCED 2. Australia has to use allocation methods to break down its combined expenditure figures for lower-secondary and upper-secondary schools into separate figures for ISCED 2 and ISCED 3.

The countries most dependent on allocations, however, are the United States and Canada. Both countries normally collect and report expenditure statistics covering only preprimary through upper-secondary education combined (i.e., K-12 education), with no differentiation of spending by level within the broad ISCED 0-3 range.[5] This situation largely reflects the organization of North American school systems. Both U.S. local education agencies (LEAs) and Canadian school boards generally operate K-12 education systems and report integrated data on K-12 expenditures to states (U.S.) or provinces (Canada). Wide variations in institutional structures among these local units have deterred most state and provincial authorities from collecting separate finance data for preprimary, primary, and secondary education, although some do produce such statistics for their own purposes. The lack of state data disaggregated by level has, in turn, discouraged the U.S. and Canadian federal statistics agencies from trying to collect such data nationally. Consequently, the only finance data the U.S. and Canadian statisticians have had to work with in preparing their submissions to international agencies are data for ISCED 0-3 combined.

The United States and Canada have responded differently to this severe data limitation. For purposes of international reporting, the United States has allocated its ISCED 0-3 expenditures among the preprimary, primary, and secondary levels, while Canada has chosen (as of 1995) to present only total ISCED 0-3 spending. As a result, Canada has been excluded from all international comparisons of preprimary, primary, secondary, and even combined primary-secondary expenditures. The United States has been included on the basis of its estimated, prorated expenditure figures.

Naturally, in every case where expenditures have had to be allocated by level, the accuracy and comparability of the results depends on the soundness of the allocation method. In many instances, the potential for error is limited because only a two-way division of funds between adjacent levels is required (e.g., between ISCED levels 0 and 1 or between levels 1 and 2). In the case of the United States, however, the allocation task is more difficult, and the potential for error correspondingly greater, because total K-12 spending has to be distributed over four ISCED levels. The same would be true of Canada if that country were to allocate its expenditures in the future. The validity of the allocation procedures is also particularly important in the cases of Australia and the United Kingdom because of the number of ISCED levels affected. (It is not just by accident, incidentally, that the expenditure statistics of the English-speaking countries are the most depend on allocations. The reason is that ISCED levels 0-3 generally reflect the structures of continental European education systems. As will be seen, the same does not apply to ISCED levels 5, 6, and 7.)

This study did not include a detailed analysis of the allocation methods used by the individual countries. Nevertheless, indications are that most such allocations have been done by the simplest possible method--prorating expenditures between ISCED levels in proportion to the corresponding enrollments. For example, enrollment-based proration appears to be the method used by the Netherlands to allocate expenditures between preprimary and primary education; by Austria, Germany, Spain, and Sweden to allocate expenditures between primary and lower-secondary education; and by the United Kingdom to allocate expenditures between lower- and upper-secondary education. This method is quick and easy but has an obvious serious shortcoming: It rests on the questionable assumption that spending per student is the same at each of the levels in question. This assumption may not be too far off the mark in certain cases--for instance, where a single year of preprimary education is provided in primary schools or, perhaps, where the levels in question are the successive stages of an integrated compulsory education (ISCED 1-2) program. But it is unlikely to be even roughly acceptable in cases where the different levels are differently organized (e.g., "departmentalized" lower-secondary education, as opposed to primary education in self-contained classrooms) or where one or both levels include differentiated general and vocational programs. Spending per student almost certainly differs by level in such cases. The effect of simply allocating funds according to enrollments would be to overstate and to understate, respectively, the expenditures of the level(s) with lower and higher unit costs.

The one example of a more complex allocation method that we can describe in any detail is the method used by the United States to distribute K-12 expenditures among the preprimary, primary, and secondary levels. The method takes into account two major determinants of unit cost: teacher-student ratio and average teacher salary. It involves the following sequence of steps:

1. Teacher-student ratios are determined for combined preprimary and primary education (defined for this purpose as grades pre-K to 6) and secondary education (defined as grades 7 to 12).
2. These ratios are used to estimate the number of teachers at each of the same two composite levels (ISCED 0-1 and ISCED 2-3).
3. The number of teachers at each level is multiplied by the corresponding average teacher salary, yielding an estimate of expenditure for teachers' salaries at each level.
4. Total pre-K to 12 spending is allocated between the two composite levels in proportion to estimated spending on teachers' salaries.
5. Finally, expenditures for the combined preprimary-primary category are apportioned between ISCED 0 and ISCED 1 in proportion to enrollments at the two levels, with each pre-kindergarten and kindergarten student counted as 0.5 of a full-time-equivalent student.

Although this method incorporates some questionable assumptions--in particular, that spending per student for resources other than teachers varies among levels in the same proportion as spending for teachers' salaries--it at least takes into account some important sources of variation in unit costs. In this respect, it is more sophisticated than simple enrollment-based proration, and it provides a potential base for development of more advanced approaches.

Assessment and Prospects for Improvement

To what extent do definitional inconsistencies detract from the international comparability of expenditure statistics? The answer depends on what type of expenditure comparison one wishes to make. The inconsistencies are serious enough in themselves, apart from any other comparability problems, to rule out the following types of direct comparisons of spending for the individual constituent levels of preprimary-secondary education:

- Comparisons of absolute amounts expended for preprimary, primary, lower-secondary, or upper-secondary education; also, similar comparisons of spending for compulsory (primary plus lower-secondary) or all secondary education.
- Comparisons of spending per capita (i.e., spending relative to national population) for the same levels and combinations of levels.
- Comparisons of spending relative to GDP (or relative to any other measure of national income or output) for the same levels and combinations of levels.
- Direct comparisons of the distribution of expenditures by level--that is, comparisons of the percentage shares of total education spending attributable to the individual levels listed above.

Any such comparisons would confound real differences in spending with differences in the nationally defined durations of levels. In general, it would not be possible to say, without adjusting for the differences in duration, whether one country really spends more (or less) than another for education at a particular level or only appears to do so because its definition of the level in question embraces more (or fewer) years of schooling.

Among the comparisons less likely to be seriously affected by inconsistent definitions of levels are comparisons of expenditure per student and comparisons of the composition of spending. To see why, consider the concrete example of a comparison of expenditures for primary education between Germany and Japan. Because primary education is deemed to last four years in Germany and six years in Japan, there is a built-in 50-percent error in comparing total primary spending, primary spending relative to national population, and primary spending relative to GDP between the two countries. Even so, a comparison of spending *per primary student* between the two countries could be reasonably accurate (setting aside comparability problems unrelated to classification by level). The main threat to its validity is that the outlay per primary student may vary over the grade levels of primary education. For instance, if Japan spent, say, 20 percent more per student in years five and six than in years one through four, Japan's expenditure per primary student would be exaggerated relative to Germany's by about 7 percent, simply because Japan's figure would include the higher-spending years, while Germany's would not.[6] Still, the error in comparing spending per student would be only a fraction of the error in comparing expenditure as a percentage of GDP.

Much the same applies to comparisons of the sources or uses of education funds. Suppose, for example, that one wanted to compare the share of the total upper-secondary budget accounted for by teachers' salaries between countries whose upper-secondary programs last two years and four years, respectively. Despite the difference in duration, the comparison might be reasonably accurate, provided that the teacher share of spending did not vary much between the first two and the last two years of the latter country's program. A comparison of funding sources--say, for concreteness, a comparison of the percentages of upper-secondary funds contributed by central, regional, and local governments--should not be affected at all by differences in duration, since whatever method the country has chosen to fund upper-secondary education presumably applies uniformly to the country's whole upper-secondary program. One can determine a priori in most instances, based on the logical relationship between the expenditure statistic of interest and program duration, whether internationally inconsistent definitions of levels rule out a valid expenditure comparison.

Naturally, all types of expenditure comparisons pertaining to primary-secondary education as a whole are much less likely to be undercut by inconsistent definitions of levels than comparisons pertaining to the individual ISCED levels. This is because, first, the duration of primary-secondary education as a whole is relatively constant across countries (twelve years plus or minus one year), whereas the durations of the individual levels are highly variable, and second, problems of defining the lower and upper boundaries of the primary-secondary sector as a whole, while not insignificant, are not nearly as severe as those of defining boundaries between the individual levels.

Most of what has been said here about inconsistent definitions of levels applies, with only minor modification not only to the statistics in all the OECD/INES indicator reports published to date but also to the statistics available before the INES project began and, unfortunately, to the statistics likely to be collected in the near future. In other words, little has been done thus far to standardize the definitions of the individual levels that make up ISCED 0-3 education. The reasons for lack of progress are not hard to identify. First, there are no internationally accepted standard definitions. It is not even clear whether such definitions should be based on fixed durations (e.g., equating primary education to the initial six years of compulsory schooling) or on some yet-to-be-specified educational-content criteria. Second, replacement of the flexible, nonprescriptive ISCED definitions with standardized definitions would force some countries to organize statistics into categories that do not correspond to the structures of their own national systems. Some countries would be reluctant to do this, and some might not comply. Third, any discussion of new definitions immediately becomes entangled with the long-running, broader debate over ISCED revision. The mere fact that such a debate has been going on (under UNESCO auspices, but with the participation of OECD and other agencies) seems to have deterred other efforts to devise definitions more suitable for statistical work. The final section of this chapter comments briefly on what may emerge from the ISCED revision process.

The one recent bright spot in this otherwise static situation is that two small steps toward standardization of levels are reflected in the new UOE data collection instruments. According to the UOE guidelines concerning definitions of levels (OECD, 1995b, p. 1-41),

> The coverage at the primary level corresponds to ISCED 1 except that . . . an upper threshold is specified as follows: In countries where "basic' education covers the entire compulsory school period . . . and where in such cases "basic" education lasts for more than 6 years, only the first 6 years following pre-primary education should be counted as primary education.
>
> . . . .
>
> The coverage at the lower secondary level corresponds to ISCED 2 except that . . . an upper threshold is specified as follows: In countries with no system break between lower secondary and upper secondary education and where lower secondary education lasts for more than 3 years, only the first 3 years following primary education should be counted as lower secondary education.

Although these rules do not prevent one country from defining the duration of primary education as four years and another defining it as six years, they do at least introduce the principle of standardized duration--perhaps an important precedent for more thoroughgoing future reforms.

With the exception just noted, the steps taken to date to deal with noncomparable definitions of ISCED 0, 1, 2, and 3 have had more to do with circumventing than eliminating definitional inconsistencies. Most of the expenditure indicators selected for presentation in OECD's *Education at a Glance* pertain to primary-secondary education as a whole, not to primary and secondary education separately or to the more detailed sublevels of secondary education.[7] The most important exception is that the OECD reports present separate statistics

BEST COPY AVAILABLE

on spending per student at the primary and secondary levels. As noted above, indicators of spending per student are less affected by inconsistent definitions of levels than are most other expenditure indicators. A second mode of circumvention, explained earlier in this chapter, has been to compare the distribution of expenditures by level only in relative terms--that is, relative to the corresponding distribution of enrollments. This tactic, first introduced in EAG2, eliminated a comparability problem but at the cost of additional complexity and greater difficulty in interpreting the comparative results. Another remedial action (a palliative, one might say) has been to improve the documentation of international differences in definitions of levels (most recently, by including structural diagrams of national education systems in EAG3), so that users of the OECD statistics will be warned of some of the definitional differences. Otherwise, the basic problem remains.

The Boundary Between Secondary and Postsecondary Education

Most countries encounter no difficulty in differentiating between secondary and tertiary education in accordance with the ISCED taxonomy. Typically, there are institutions designated upper-secondary that serve students up to ages 18 or 19, and there are other institutions, designated tertiary, that serve students who have completed an upper-secondary program. However, a few countries have education structures that blur the secondary/tertiary distinction. One source of ambiguity is that some countries have sectors or institutions that straddle the border between upper-secondary education (ISCED 3) and non-university tertiary education (ISCED 5). These hard-to-classify institutions are mainly, but not exclusively, providers of vocational-technical education. Another difficulty is that in a few countries, most notably Germany, students who have earned an upper-secondary qualification can then enroll in a second or subsequent educational program still classified as upper-secondary (ISCED 3) education. Students at a comparable stage in their educational careers would be considered ISCED 5 participants in most other countries.

Before considering these structural problems, we pause to mention a more fundamental and more delicate boundary issue. It concerns the educational-quality aspect of the distinction between secondary and tertiary education. Educational standards are not the same in all countries, and the educational requirements for admission to tertiary-level programs vary greatly. As a result, the level of prior preparation that tertiary institutions can expect of entering students also varies, as does, perforce, the intellectual level of the initial stage of tertiary study. The possibility exists, therefore, that the ISCED 5, or even the ISCED 6, tertiary programs of some countries may be at a lower level, educationally speaking, than the ISCED 3 programs of other countries.

To cite perhaps the best-known example, a substantial fraction of the teaching activity of U.S. two-year community colleges (and some four-year colleges and universities) consists of remedial instruction at the high school (ISCED 3) level, designed to bring students to the point of being able to perform "college level" work. Because the U.S. statistics, like those of most other countries, are institution-based, these institutions are classified in their entirety as providers of tertiary education. One can say, therefore, that from the perspective of the educational tasks being performed, U.S. expenditures and enrollment for tertiary (especially ISCED 5) education are overstated, while ISCED 3 expenditures and enrollment are correspondingly understated, relative to those of other countries.

But quality-related classification problems, though real and important, cannot be addressed within any extant framework for international statistics. Dealing with it would require qualitative classification criteria, rather than, or in addition to, criteria based on formal designations of programs and institutions. Although the ISCED manual affirms that it would

BEST COPY AVAILABLE

sometimes be appropriate to assign some programs of an institution to one level of education and some to another, it envisions that such distinctions would be based on the type of qualification offered, not on the intellectual caliber of the program offerings. Thus, although the educational-quality aspect is important and intriguing, nothing practical can be done about it at this time. Having noted it for the record, we now return to the narrower structural issues.

Sectors that Straddle the Secondary/Tertiary Boundary

Sectors offering educational programs (mainly vocational-technical) that straddle the boundary between upper-secondary and tertiary education exist on a substantial scale in three of the ten countries covered by this study. The sectors are further education (FE) in the United Kingdom, technical and further education (TAFE) in Australia, and MBO (*Middelbaar beroepsonderwijs*, or senior secondary vocational-technical education) in the Netherlands.

The further education sector is the United Kingdom's largest provider of educational services to students who have completed compulsory education (generally students 16 and older). FE programs are offered mainly in institutions called further education colleges (sometimes tertiary colleges), but FE courses are also offered by some secondary schools and some institutions of higher education. The FE sector also includes separate adult education centers. In fact, about two-thirds of all participants in FE are part-time day or evening students, served by the adult centers or other FE providers. Nearly half of all FE students are persons 25 years old or older, most of whom attend school part time. Some FE clearly is ISCED 3 education, designed for individuals seeking to complete general or vocational-technical upper-secondary qualifications. However, a substantial but hard-to-quantify component of FE consists of more advanced vocational-technical education of the type commonly offered elsewhere by ISCED 5 institutions.

In the United Kingdom's UOC and EAG1 and EAG2 data submissions, all FE enrollment and expenditure is classified as ISCED 3. As a result, the reports overstate the UK's upper-secondary expenditures and understate its non-university tertiary expenditures, compared with countries that have more sharply differentiated ISCED 3 and ISCED 5 sectors. Moreover, because expenditure per student is generally higher in FE than in non-FE secondary education but lower in FE than in higher education, the effect of assigning all FE to the secondary level has been to exaggerate the UK's spending per student at *both* the secondary and tertiary levels.

Australian institutions of technical and further education (TAFE) offer a wide range of pre-vocational, vocational, and non-vocational courses. Programs of study provide entry level training, instruction in particular aspects of job skills, pre-vocational training to permit entry into a chosen vocational course, and traineeships for technical and paraprofessional positions. Most TAFE programs are housed in government-administered colleges, or centers of technical and further education; some TAFE instruction is provided in higher education institutions, schools, agricultural colleges, and adult education centers.

Students can begin study in TAFE institutions after completing 10 years of general education (typically at age 14 or 15), but recently more students are staying longer in secondary school and entering TAFE programs after 11 or 12 years of schooling. Most TAFE students are enrolled part-time in programs that last several years. About 20 percent of TAFE students are 19 years of age or younger, but about 60 percent are 25 years old or older. About one-third of TAFE enrollment is in recreation and leisure courses, which would be considered adult education in most countries.

In contrast to the UK's treatment of FE, Australia assigned all TAFE enrollment and expenditures to the tertiary (ISCED 5) level in its UOC2 and EAG1 and EAG2 submissions.

As a result, Australia understates secondary expenditures, overstates tertiary expenditures, and understates spending per student in both secondary and tertiary education, compared with countries that have well-demarcated ISCED 3 and ISCED 5 sectors. A comparison between Australia and the United Kingdom would be particularly distorted because of the contradictory reporting practices of the two countries. More recently, however, Australia has developed a procedure, to be used in preparing future data submissions, for apportioning TAFE expenditures (exclusive of outlays for personal-interest and "hobby" courses) among ISCED levels 2, 3 and 5.

The senior vocational-technical education (MBO) sector in the Netherlands provides vocational-technical programs lasting two to four years to students who have completed lower-secondary education, which means that it typically serves students from age 16 to ages up to 20. MBO prepares both full-time and part-time students for a variety of professional-technical occupations. As described by the Netherlands Ministry of Education, MBO courses "train pupils to occupy middle-ranking posts in industry, the service sector and the public sector." It appears that the upper levels of MBO offer training of comparable sophistication to the ISCED 5 programs of some other countries. In its UOC2 and EAG1 and EAG2 submissions, the Netherlands attributed all MBO enrollment and expenditures to upper-secondary education. The consequences for comparability are the same as described above for FE in the United Kingdom. Recognizing the problem, the Netherlands authorities have considered a division of MBO into lower and upper levels, to be designated ISCED 3 and 5, respectively, for future data submissions.

The ISCED manual offers a useful hint on how to handle FE, TAFE, MBO, and any similar sectors that might be encountered in other countries. Applying the basic ISCED principle that programs, not institutions, are the entities to be classified by level, it says that in cases where educational institutions offer programs of education falling within more than one ISCED level, such programs "should be assembled into the appropriate ISCED categories" (UNESCO, 1976, pp. 29-30). The implication is that the enrollments, personnel, expenditures, etc. of sectors like FE, TAFE, and MBO should be divided in appropriate proportions between ISCED 3 and ISCED 5. A statement to this effect has been included in the instructions for the UOE finance data collection instrument.

It is not yet clear how difficult it will be for the countries concerned to apportion expenditures between levels, or whether the different countries will be able to allocate funds in a reasonably consistent manner. Ideally, each country with an ambiguous, boundary-straddling sector would have to determine which specific programs or courses are appropriate to include in ISCED 3 or ISCED 5. But even if a country found it practical to deal with the issue at that level of detail, there is still the question of which classification criteria to apply. Certainly, age alone would not be appropriate, especially considering the extent of part-time participation in FE and TAFE programs. In principle, criteria based on the level and type of occupation for which students are being trained would be more suitable, but agreement about even the pertinent occupational categories would be difficult to obtain.

Given the conceptual and practical difficulties, it makes sense to seek rougher, more aggregative methods of partitioning the problem sectors. Our understanding is that this is the course being followed by the countries concerned. In the United Kingdom, for example, it is possible to classify FE students by "qualification aim"--the stated type of credential for which a student is preparing. Moreover, the United Kingdom has recently established a framework of national vocational qualifications, specifically for the purpose of sorting out programs and qualifications by substantive level. This could be the basis for a division of FE enrollment and spending between ISCED 3 and 5. The Netherlands, as already noted, is considering a distinction between lower and upper levels of MBO, based on the technical sophistication or difficulty of the programs. Australia also apparently is able to classify TAFE courses or programs by purpose or level, although we do not know the details of how this is done. It would be useful for OECD to encourage countries to partition their ambiguous sectors by such methods, and to document the classification and allocation procedures. Based on the results of such exercises, OECD might be able to develop more general guidelines, suitable for inclusion in future instructions to all the national data providers.

Multiple Cycles of Upper-Secondary Education

The following remarks on the multiple cycle problem refer specifically to Germany, although we know that the same phenomenon also affects (to a lesser extent) the statistics of Austria and several other countries. According to the German authorities, about 25 percent of all students who earn an upper secondary qualification subsequently enroll in a second cycle of upper secondary training, usually but not always of a different type. Various sequences are possible: A student can complete an apprenticeship under the dual system and then enroll in a full-time, advanced upper-secondary program in an allied field, or perhaps in an academic upper-secondary institution (Gymnasium) that gives access to higher education. Or, a student may complete two apprenticeships in two different fields, or even, we have been told, become an apprenticeship after obtaining a tertiary qualification. By the end of his or her second cycle of upper- secondary education, the student may be 22 or more years old. This is older than the age at which many students complete ISCED 5 or ISCED 6 programs in other countries, and, of course, considerably older than the ages of 18 or 19 cited in the ISCED manual as typical for completion of upper-secondary schooling. But age is not the sole consideration. The instructional level of some of the German (and Austrian) ISCED 3 programs in which participants in second cycles are likely to enroll is said to be quite advanced--as much so as the ISCED 5 programs of some other countries. Moreover, some programs that students pursue during their second cycles of so-called ISCED 3 education apparently are designed with the idea that students will enter only after having earned an initial ISCED 3 qualification.

Many countries do not recognize second cycles and would classify at least some of the German second cycle enrollees as ISCED 5 students. The consequences of the German practice of including them in ISCED 3 are (other things being equal) to overstate Germany's ISCED 3 enrollment and expenditures; to understate tertiary (ISCED 5) enrollment and expenditures; and probably to overstate spending per student for both ISCED 3 and ISCED 5 education.[8] The issue, therefore, is whether some of the German "upper secondary" enrollment and spending associated with second and subsequent cycles should be reclassified--shifted from ISCED 3 to ISCED 5.

The German authorities themselves have suggested a partial solution to the enrollment aspect of the problem, which was adopted by INES for EAG3 and subsequently incorporated into the UOE questionnaires. This solution is to distinguish statistically between persons enrolled in the initial and subsequent cycles of ISCED 3 education. With both data items in hand, one can select the appropriate enrollment statistic for a given purpose. For instance, rates of ISCED 3 participation can be compared on the basis of first-cycle enrollment only, while comparisons of spending per ISCED 3 student can be based on enrollment in first and second cycles combined. But unfortunately, this disaggregation of enrollment does nothing to improve comparisons of total secondary and tertiary spending. In this respect, the second-cycle problem remains unresolved.

A possible solution is to make the same distinction with respect to expenditures as with respect to enrollments. This would require the countries with multiple cycles to allocate

ISCED 3 costs between their first-cycle and second-cycle programs. It would then be possible to compare both total expenditures and expenditures per student either for first-cycle ISCED 3 programs only or for the first-cycle and second-cycle programs combined.

Going a step further, the international agencies might take the position that the so-called second cycles of ISCED 3 are more appropriately classified as "postsecondary" programs at the ISCED 5 level. This would eliminate a significant anomaly in the definition of the boundary between ISCED 3 and ISCED 5 education and enhance the comparability of expenditure (and other) statistics for both levels. But it might also elicit objections from the countries concerned. These countries could be expected to point out that the activities in question belong administratively and operationally to the secondary education system (an argument accorded little weight under ISCED) and, more substantively, that the second-cycle programs sometimes are at the same technical or intellectual level and require the same preparation of students as first-cycle ISCED 3 programs.[9] Therefore, although reclassification would enhance the overall international comparability of both ISCED 3 and ISCED 5 statistics, the results would not fully reflect the education structures (or the views concerning those structures) of the countries concerned. As will be seen, the same can be said about many proposals for recasting statistics based on particular national structures into standard international categories.

A final observation: The foregoing discussion brings out the point that the closely related terms "tertiary" and "postsecondary," often treated as synonymous, actually have significantly different meanings. In the United States, Canada, and a few other countries, the operative concept is postsecondary. Once having earned an upper-secondary qualification (such as a high school diploma), a student is never considered a secondary student again. Every regular education program in which he or she subsequently enrolls (with the possible exception of some forms of adult education) is considered postsecondary, regardless of content or substantive level. In contrast, in some European countries, the attainment of an upper-secondary qualification does not necessarily signal the end of a student's participation in upper-secondary education. Some ISCED 3 graduates enroll in new ISCED 3 programs, sometimes for as many years as their fellow graduates will spend in tertiary institutions. The fact that some national data providers are thinking "tertiary-level program" while others are thinking "postsecondary student" accounts for part of the difficulty in defining the secondary/tertiary boundary consistently.

Problems in Defining the Constituent Levels of Tertiary Education

According to the ISCED taxonomy, tertiary education consists of three levels: non-university tertiary education (ISCED 5), the undergraduate level of university education (ISCED 6), and the postgraduate level of university education (ISCED 7). The problem of delimiting the tertiary sector as a whole has already been dealt with, for the most part, in the preceding discussion of the secondary/tertiary boundary. Such related questions as whether university research should be included are discussed elsewhere (see Chapter 7). This discussion focuses on issues concerning the constituent levels of tertiary education: Have countries distinguished consistently among ISCED 5, ISCED 6, and ISCED 7 education, and if not, how they might do so better in the future.

Non-University versus University-Level Tertiary Education

There seems to be wide agreement in principle that it is important for policy and analytical purposes to distinguish between university-level education and less elevated forms of tertiary or postsecondary study. In this context, the term "university" should not be taken literally. It is not meant to apply only to institutions actually designated universities--usually meaning institutions that offer both initial and higher degrees in multiple disciplines and that perform both research and teaching functions. Rather, the intent is to distinguish between the class of tertiary programs, usually of four years' duration or more, that lead to bachelor's degrees or their equivalents and the shorter, often more practically oriented tertiary programs, typically offered by technical institutes, community colleges, and other such institutions, that lead to qualifications of less than bachelor's degree status. The former, designated ISCED 6 programs, are called "university" programs for convenience, while the latter, designated ISCED 5, are called non-university tertiary programs, although a term like "sub-university" might be more descriptive.

The INES project has collected separate enrollment figures for ISCED 5, 6, and 7 education but did not, prior to 1995, ask countries to disaggregate expenditures into corresponding categories. Countries submitted expenditure figures only for all tertiary education (ISCED 5-7) combined. As a result, it has not been possible to pursue such questions as how expenditure per university student compares across countries or how countries apportion their resources for tertiary education between the university and non-university sectors. Although the UNESCO-OECD-EC Joint Questionnaire appears to go one step further in this regard--Form UOC2 does provide for separate reporting of expenditures for non-university and university tertiary education--inadequate definitions and logical flaws in the UOC data categories have severely limited the usefulness of the resulting data.

Expenditure comparisons covering all forms of tertiary education combined are legitimate and useful for some purposes, but they can also leave data users with false impressions. The sources of difficulty are that, first, non-university tertiary education usually costs much less per student than university-level tertiary education, and second, the division of total tertiary enrollment between non-university and university-level programs varies greatly among countries. Consequently, differences in spending per student can become confounded with differences in the composition of tertiary enrollment, obscuring the underlying international variations in levels of financial support for tertiary programs.

To illustrate, suppose that country A spends 15 percent more per student than country B at both the non-university and the university levels but that 40 percent of country A's tertiary students and only 10 percent of country B's are enrolled in non-university (ISCED 5) programs. Suppose further that university-level education costs twice as much per student as non-university tertiary education in both countries. A comparison of the two countries' outlays for all tertiary education--university and non-university combined--would show that country A spends *less* per tertiary student than country B--about 3 percent less, to be precise.[10] But this result reflects only the higher proportion of country A's students enrolled in non-university programs. It misses completely the fact that country A spends more per student at each level. Users of the international statistics could easily be misled.

Although the numbers used in the foregoing example are hypothetical, they are also realistic. According to national data submissions for EAG3, the percentage of FTE tertiary enrollment classified as ISCED 5 was about 32 percent for the United States, about 23 percent for France, and only about 12 percent for Germany.[11] The American university-level (four year) institutions spend two to three times as much per FTE student as the non-university (two year) institutions (NCES, 1994). Therefore, distortions similar in scale to those illustrated above can occur. Recognizing the problem, the international agencies agreed in 1995 that separate ISCED 5 and ISCED 6/7 expenditure categories should be included in the new UOE finance questionnaire.

But a problem with separating the university and non-university components of tertiary spending is that countries do not always distinguish consistently between ISCED 5 and ISCED 6/7 programs. According to the ISCED manual, the distinction is supposed to rest on the type of qualification awarded--whether or not it qualifies as a "first university degree" (sometimes described as a bachelor's degree or the equivalent). Unfortunately, there is still some ambiguity as to which national tertiary qualifications reach that level and which fall short of it. It does seem to be agreed that an interim credential such as the French DEUG (*Diplôme d'études universitaires générales*), which students receive after completing the second year of a four-or-more-year university program, is neither an ISCED 5 nor an ISCED 6 award. Qualifications such as the U.S. Associate of Arts degree (awarded by community colleges for completion of two-year programs), the French BTS (*Brevet de technicien supérieur*), and the British Higher National Diploma, are recognized as ISCED 5 credentials. But program duration alone is an insufficient criterion. For instance, it takes the same three years to earn a first university degree (considered an ISCED 6 qualification) in the United Kingdom as it does to earn certain ISCED 5 qualifications, especially in technical fields, in several continental European countries. Thus, although the area of ambiguity has been narrowed, some areas remain blurry.

A closely related practical problem is that ISCED 5 and ISCED 6 programs are not always institutionally separated. In Canada and the United States, for example, community colleges, which are the main providers of ISCED 5 programs, offer both two-year terminal programs leading to awards not equivalent to the bachelor's degree (e.g., associate degrees) and transfer programs leading to work toward the bachelor's degree in four-year tertiary institutions. Moreover, some four-year institutions also offer two-year programs leading to the same types of less-than-bachelor's degrees. To report ISCED 5 and ISCED 6/7 expenditures separately, both Canada and the United States would have to distinguish between enrollments in terminal and transfer programs and then apportion community college expenditures accordingly between ISCED 5 and ISCED 6. But such distinctions would be very difficult to make, for a variety of conceptual and practical reasons. In practice, both countries can be expected to assign all community college enrollments and expenditures to ISCED 5, thereby introducing errors into the expenditure comparisons.[12]

In the United Kingdom, there is even less correspondence between ISCED levels and institutional categories. Institutions called FE colleges can offer higher education (HE) programs, and tertiary colleges and universities can offer FE programs. To report ISCED 5 and ISCED 6 expenditures separately, the UK would have to allocate the expenditures of each class of tertiary institutions between the two levels, presumably according to the numbers of enrollees in each type of institution identified as ISCED 5 and ISCED 6 students. Because the UK statisticians are already accustomed to allocating costs between various pairs of adjacent ISCED levels, they may be better prepared than most other countries' statisticians to undertake this additional task.

Given the aforesaid problems, what gains can be expected from the disaggregation of tertiary expenditure into separate ISCED 5 and ISCED 6/7 components? Realistically, the exercise is unlikely to yield valid international comparisons of ISCED 5 spending. For that to occur, not only the issues concerning the ISCED 5/ISCED 6 border but also the previously discussed problems concerning the ISCED 3/ISCED 5 border would have to be resolved. Even so, separating ISCED 5 from ISCED 6/7 spending should have an important positive effect: Currently, without such a separation, all the ambiguity about what is secondary and what is tertiary adversely affects comparisons of spending for all tertiary education. After the separation, comparisons of ISCED 6/7 expenditures should be insulated from those negative effects. Therefore, even if comparable ISCED 5 figures are not obtained, the more important comparisons of spending for university-level education should be improved.

Undergraduate versus Postgraduate University Education

The same desire to compare relatively homogeneous categories of education as motivates the effort to separate university from non-university education also provides a rationale for separating the costs of undergraduate and postgraduate (ISCED 6 and 7) university programs. Expenditure per student is different at the two levels (presumably much higher in postgraduate education), and the mix of ISCED 6 and ISCED 7 enrollment varies among countries. International comparisons of unit costs in undergraduate and postgraduate education and of the shares of the total higher education budget allotted to the undergraduate and postgraduate levels in each country would be of considerable policy interest. They would be relevant, for example, for considering how different countries handle the tradeoff between broad access to higher education and development of the nation's professional, scientific, and intellectual elites. However, separating expenditures for ISCED 6 and 7 is more difficult than separating ISCED 6/7 from ISCED 5. To our knowledge, no one has yet attempted to make the latter distinction in international expenditure statistics. The issue is whether it might be feasible to do so in the future.

Again, the concept underlying the ISCED distinction between levels is "first university degree." According to the ISCED manual, ISCED 6 includes all programs in which students enroll to earn a first degree; ISCED 7 covers programs in which students who already have a first degree enroll to earn a higher degree. Although the European Union has exerted considerable efforts to establish "degree equivalencies" among its member countries, there is still confusion as to which of the many types of tertiary qualifications conferred by the various countries should be considered "first degrees" and which should be deemed "higher degrees" for international statistical purposes. Adding the non-European countries exacerbates the problem. Some European countries whose first university degrees normally require five or six years of university study vehemently reject the suggestion that such degrees are equivalent to the four-year bachelor's degrees (three-year bachelor's degrees in the United Kingdom) typically awarded in the English-speaking countries. A more appropriate counterpart, they say, is the U.S. or Canadian master's degree. Accordingly, some European countries appear to have classified at least some of their first-degree programs as ISCED 7 (contrary to ISCED), while others have provided enrollment figures only for ISCED levels 6 and 7 combined. (A third possibility, which we suspect but have not confirmed, is that some may have classified enrollment in the first three or four years of long programs as ISCED 6 and enrollment in subsequent years of the same programs as ISCED 7.) Consequently, even the statistics on ISCED 6 and ISCED 7 enrollment are not always internationally consistent. The same definitional problems would carry over to any attempt to collect separate ISCED 6 and ISCED 7 expenditure statistics.

Assuming either that the issue of equivalency of degrees were resolved or that some other criterion were adopted for distinguishing between ISCED 6 and ISCED 7 education, data providers would still have to devise valid, internationally comparable methods for allocating the expenditures of tertiary institutions between the two levels. In contrast to the ISCED 5/6 situation, where ISCED 5 and ISCED 6 programs usually (though not always) are offered by separate institutions, ISCED 6 and ISCED 7 programs usually are housed together. Typically, undergraduates and graduates enroll in the same university departments, share the same facilities, and are taught by the same faculty members. Aggregative institution-level statistics are useless for separating ISCED 6 and 7 spending. Each country would have to use detailed data on the composition of institutional enrollments and programs to allocate resources or expenditures between the two ISCED levels.

The allocation task is not as impossible as it may sound. Some countries already disaggregate the costs of institutions of higher education by level and program for administrative purposes (for example, to develop unit cost factors to use in distributing government funds among institutions). But making such distinctions in an internationally comparable manner would be more difficult. There would have to be a substantial developmental effort to work out the appropriate cost categories and allocation methods. The effort of OECD's Directorate for Science, Technology, and Industry (DSTI) to separate university expenditures for research from expenditures for teaching provides both valuable experience for such an exercise and a warning about the potential difficulties.[13] One thing that seems clear is that not many countries will be able to separate ISCED 6 and ISCED 7 spending in the near future. For some time to come, analysts will have to make do with expenditure statistics for university education as a whole.

Expenditures Not Allocated By Level.

The ISCED taxonomy, the UOC questionnaires, the INES data collection forms, and the 1995 UOE instrument all afford countries the opportunity to classify some education expenditures as not allocated by level. Disparate national interpretations of "not allocated" have created a comparability problem. In their data submissions for EAG2, some countries assigned all their expenditures to specific levels, leaving zero expenditures unallocated, while others placed as much as 10 to 15 percent of total national education spending in the not-allocated category. As a result, the amounts spent for specific levels of education by countries in the latter group were understated relative to those of countries in the former group.

Moreover, because certain types of expenditures are likely to be more difficult than other types to assign to particular levels, and hence more likely to be deemed unallocable, the diverse interpretations of not-allocated also distort comparisons of the composition of education spending.

Definitional Problems

That there should be some confusion about which expenditures not to allocate by level is hardly surprising, given the conflicting and changing instructions provided by the international agencies. According to the ISCED manual, ISCED 9, the category for activities not allocated by level (the ISCED term is "education not definable by level") is to be used only sparingly. It should be reserved for cases in which (1) there is no definable level of required prior education for entry into the program in question, and (2) no appropriate parallel or analogy can be established between the program in question and some regular program already assigned to a particular ISCED level. It was envisioned that the not-allocated category would include mainly short-term and part-time educational activities, not parts of the mainstream offerings of regular educational institutions. Anticipating later difficulties, the drafters of ISCED warned as follows (UNESCO, 1976, p. 331):

> The content of [ISCED 9] can be described only in a negative sense, i.e., programs that cannot be fitted into any of the other categories. Thus it is a residual and care must be taken to avoid making it a receptacle for all cases that are difficult to classify by level. If it were to become such a receptacle, not only would it be too large and heterogeneous itself for useful analyses, but the value of the data on all other levels would be affected adversely.

Unfortunately, precisely the undesirable results predicted in this paragraph have materialized in the UOC and INES submissions of some countries.

As explained earlier, the UOC Joint Questionnaires deviate from ISCED by providing separate categories for special education, adult education, and "other types" of education--categories which, under ISCED, are supposed to be assigned to regular ISCED levels. In addition, Form UOC2 provides a line for "expenditure not distributed by level," unhelpfully defined as "common charges (such as general administration)" and "all other expenditure which cannot be classified in one of the [other levels]." In effect, Form UOC2 creates an expanded not-allocated category, comprising all the aforementioned items. The fact that some countries have continued to classify expenditures for special education and adult education as not-allocated in their INES submissions--instructions to the contrary notwithstanding--seems to be a direct reflection of the habits developed over the years in preparing expenditure statistics for Form UOC2.

The first INES data collection form (for EAG1) included a vaguely defined category of "expenditure undistributed by level." The only examples of such expenditures cited in the 1991 INES *Handbook* were central administrative costs and general-purpose grants. Categories such as special education were not mentioned. In an attempt to mitigate the ensuing comparability problems, the EAG2 data collection forms provided separate lines for reporting (1) expenditures for ISCED 0-3 education not specifically allocable to the individual levels within that range, and (2) expenditures that could not be assigned definitely even to ISCED 0-3, as distinguished from ISCED 5-7. However, this elaboration of not-allocated proved to be of little value. It did not correct the basic definitional problem: the lack of guidance as to which specific categories of education spending can legitimately be classified as expenditures not allocated by level. The issue was first addressed directly and in detail in preparing the data collection for EAG3--a development described a bit later in this section.

Reporting of Unallocated Expenditures by the Countries

Four of the ten countries covered by this study did not report any expenditures as not allocated by level in their data submissions for EAG2. Each of the four--Australia, Canada, Spain, and the United States--used some sort of apportionment procedure, explicit or implicit, to distribute all potentially hard-to-classify expenditure items among ISCED levels 0-3 and 5-7. The other six countries reported unallocated expenditures amounting to between 6 and 11 percent of total national education spending. However, certain countries not covered by the study have reported substantially larger not-allocated percentages--for example, more than 17 percent of total spending in both Belgium and New Zealand. The effect on international expenditure comparisons based on the EAG2 data is, of course, that the countries reporting high percentages of unallocated appear to be spending misleadingly little for specific levels of education (other things being equal), as compared with the countries that reported low or zero amounts of unallocated expenditures.

Countries have classified a variety of different expenditure items as unallocated. Two of the most important have already been mentioned--special education and adult education. (Some countries included adult education expenditures in the not-allocated category of their EAG2 submissions despite the then-operative instruction to exclude adult education entirely.) A few countries consider education in the arts to be an activity outside the normal set of levels, and so treated spending for such education as unallocated. Also frequently included in the unallocated category are the costs of central administration and related support and overhead functions, including, for example, the cost of operating national and regional education ministries and expenses for education research, evaluation, curriculum development, and school inspectors. Other significant items that some countries have placed in the not-allocated category include expenditures for student transportation, government-provided textbooks, scholarships, and subsidies for student meals and housing.

Countries classify expenditures as unallocated for several reasons. One rather mundane reason--the importance of which should not be underestimated--is simply that they are accustomed to doing so. Many countries have categories of unallocated expenditures in their own education budgets and internal statistics. For example, France regularly publishes a tabulation of national expenditures for education that breaks down spending for all instructional-related activities by level of education but also includes various categories of spending for ancillary and support functions that are not distributed by level (see, e.g., *Ministère de l'Éducation Nationale*, 1993). The categories not distributed by level account, in the aggregate, for 18 percent of total education spending. The UOC forms legitimized similar accounting practices in the international statistics.

In many cases, the practice of classifying expenditures as unallocated reflects the reality of how education is organized and administered in the country concerned. Consider expenditure for special education (education of persons with disabilities), which is the largest category of spending that some countries persist in labeling not-allocated. In some countries, most special education students attend regular preprimary, primary, or secondary schools; consequently, the costs of serving such children are considered an integral part of the cost of operating such schools, and hence are included in expenditure for each level of education. Canada and the United States are countries that report expenditures for special education in this manner. In contrast, certain other countries rely primarily on separately administered, separately funded special education schools. These institutions may or may not be differentiated by level, but whether they are or not, their funds are likely to be accounted for separately in national education budgets and statistics. Consequently, the natural thing for the latter countries to do when submitting data to an international agency is to place special education expenditures in a separate category (as in Form UOC2) or, if there is no separate category, to report them as "not allocated by level" (as in the INES submissions). France, Germany, Austria, and Japan are among the countries that have followed the latter pattern.

Organizational factors account for other instances of reporting expenditures as unallocated. The reason some countries do not assign adult education outlays to specific ISCED levels is that their adult education programs are institutionally separate from regular programs. But this sort of administratively motivated separation, albeit reasonable from the point of view of the country concerned, creates a problem when comparisons must be made with countries whose regular institutions are the main providers of adult education services. The same applies to education in the arts, which is institutionally separate in some countries, and hence not thought of as belonging to either secondary or tertiary education, but which is provided by regular secondary or tertiary institutions in other countries.

Ancillary and support services are especially likely to be treated as not-allocated for organizational reasons. It is relatively rare, for instance, for student transportation to be provided by the education authorities themselves, as is done in the United States. More commonly, the function is performed by a separate agency, and the cost is reported as a miscellaneous item of expenditure (i.e., not-allocated) rather than as part of spending for the regular levels of education. In countries where both secondary and tertiary students are eligible for scholarships or other student subsidies and a single agency is responsible for dispensing financial aid, that agency may not distinguish between secondary and tertiary beneficiaries in its statistics; hence the aid is reported as not allocated by level. Similarly, where a single agency is responsible for distributing textbooks for ISCED 0-3 education (as in Austria), the cost of the textbooks is likely to be treated as an unallocated expenditure.

The category of support services embraces the most clear-cut and defensible of all unallocated items, expenditure for central administration and related central overhead functions. The operating costs of the national education ministry, state or provincial education authorities, and local education agencies really do pertain, at least in part, to all levels of education combined. Arguably, the same is true of some expenditures for evaluation, education research and statistics, curriculum development, inspection, administration of examinations, etc. But even in these areas, there is a question of degree. Some central functions may be assignable by level (e.g., development of primary, as opposed to secondary, curricula), leaving only a small core of truly unallocable activities.

The countries that show zero unallocated expenditures in their international data submissions have done so by apportioning all expenditures, including the central administrative and overhead costs, to specific ISCED levels. In the cases of Canada and the United States, where all ISCED 0-3 spending has to be distributed artificially among levels, the issue of dealing with specific hard-to-classify categories of spending pales into insignificance. In other instances, however, countries have eliminated or reduced the size of the unallocated category by prorating specific expenditure items by level. For example, some countries that keep expenditures for special education separate in their domestic accounts have divided those expenditures among the preprimary, primary, and secondary levels (usually based on the age of the students) for the purpose of international reporting. It is perhaps a bit ironic that countries whose normal domestic statistics on ISCED 0-3 expenditures are mostly disaggregated by specific ISCED level, such as France, should be left with a substantial block of unallocated spending, while countries whose ISCED 0-3 statistics are not normally broken down by individual level at all, such as the United States and Canada, have been able to bypass the not-allocated problem.

Assessment and Options for Improvement

The situation up to now, with different countries reporting anywhere from zero to more than 15 percent of expenditure as not-allocated, has resulted in distorted comparisons of spending for particular ISCED levels. The nature and degree of the distortion depends not only on the percentages of spending reported as unallocated but also on the makeup of the unallocated outlays. It makes a difference whether the unallocated items are attributable more or less uniformly to all levels of education or are associated mainly with particular levels. Consider the following example.

Suppose that the education systems of country A and country B are physically and financially identical but that country A allocates all expenditures to specific ISCED levels, while country B reports 10 percent of total spending as not-allocated. If the unallocated expenditures were no more closely associated with any one level than with any other, the resulting error in comparing spending for each ISCED level between the two countries would also be 10 percent. For example, country B would report 10 percent less spending for ISCED 3 education than country A, though in reality its ISCED 3 spending--including a proportionate share of the unallocated funds--is the same as country A's. But now suppose that country B's unallocated spending is strongly tied to ISCED 3 education (say, for example, that much of it consists of spending for adult education). Specifically, assume that 60 percent of all the spending that country B failed to allocate is assignable to ISCED 3. Assume further that the "true" ISCED 3 share of expenditure (with everything allocated) is 20 percent of each country's total education spending. Under these assumptions, country B's ISCED 3 expenditure would be understated not by 10 percent but by 30 percent. Moreover, country B would appear, misleadingly, to be distributing funds among its levels in a different pattern than country A, namely, slighting ISCED 3 while favoring other levels of education. Thus the deviation from comparability can be greater than one would infer from the not-allocated percentage alone.

The problem of unallocated expenditures was confronted directly in the INES data collection effort for EAG3. The EAG3 instructions include the directive that

> . . . the columns labeled "not allocated by level" should be used only to report certain limited, explicitly enumerated types of spending that are genuinely not attributable to particular levels of education.
>
> Items that can legitimately be classified as "not allocated by level" include expenditures for general administration of education at the national, regional, and local levels and expenditures for such other functions as inspection, evaluation, curriculum development, and educational research. However, even these expenditures should be allocated to particular levels when there is a reasonable basis for doing so.

This statement is followed by an enumeration of specific items that had been reported as "undistributed" or "unallocated" by certain countries in the past but that should not be so classified in the future. On the list are expenditures for special education, government-provided textbooks, scholarships and other financial aid to students, adult education, in-service training of teachers, and such student welfare services as housing, meals, and student transportation. The UOE instructions repeat essentially the same information, adding that expenditures for such categories as special and adult education should be allocated to specific levels. It should now be clear to all concerned that only a few narrowly defined types of spending are legitimately classifiable as not-allocated.

Whether the problem of unallocated expenditures will be resolved now depends on the ability and willingness of the national data providers to prepare their statistics according to the revised instructions. The EAG3 experience offers moderate encouragement. A few countries reduced their percentages of unallocated expenditures sharply between EAG2 and EAG3;

others managed moderate reductions; and still others seem not to have changed this aspect of their statistics. It would be premature to reach conclusions, however. For a country to shift its expenditures out of the not-allocated category requires both the development of new statistical procedures (e.g., allocation methods) and the decision to depart from traditional practices. It would be surprising if both steps could be taken quickly.

On the technical side, each country that reported substantial not-allocated expenditures in the past but now wants to comply with the instructions not to do so now has to choose methods for attributing the previously unallocated expenditure items to specific ISCED levels. The appropriate method varies, depending on how the unallocated activities are organized within the country and what types of data are available. Consider special education. Some countries have administratively separate primary special education and secondary special education programs (e.g., France), which makes it easier to decide how expenditures should be assigned, but other countries do not classify special education institutions or students by level. Each country in the latter group would have to introduce an allocation criterion, such as the ages of the students served. For example, special education students age 6 to 12 could be counted as primary students, students age 13 to 18 could be counted as secondary students, and expenditures could be allocated proportionately between the levels, perhaps with some adjustment for the difference between secondary and primary unit costs. A country lacking data on the ages of special education students could use the cruder method of allocating expenditures in proportion to total primary and secondary enrollments in the pertinent age groups.

Allocations of various other expenditure items could also be based mainly on the numbers of students in pertinent categories. For example, the distribution of adult education spending among ISCED 2, 3, 5, and 6 (as applicable) could be linked to enrollment in

BEST COPY AVAILABLE

different nationally defined types of adult programs; outlays for student transportation could be allocated according to numbers of preprimary, primary, and secondary students transported; and so forth. The availability of pertinent data will vary by country. Depending on what records exist, some countries might have to use rough proxies for the appropriate student counts (e.g., the number of students enrolled rather than the number transported). As a general rule, even crude approximations are better for purposes of international comparison than leaving any substantial block of spending in the not-allocated category.

The new UOE instructions are not definitive as to whether such true joint-cost items as expenses of central administration and overhead should also be apportioned among the ISCED levels. Any such allocation is inherently somewhat arbitrary; on the other hand, allocation may be the best way to deal with the problem that some countries construe the central administration category more broadly than others. Part of the solution may be first to narrow the category requiring allocation as possible--for example, by assigning the costs of central administrative offices specifically concerned with tertiary affairs to ISCED 5-7, rather than leaving them in the not-allocated category. The remainder can then be apportioned according to a criterion as general as total current expenditure for each ISCED level. This seems to be the method used, explicitly or implicitly, by the countries that show no unallocated expenditures in their INES submissions.

In sum, there seems to be no major technical obstacle to eliminating the problem of expenditures not allocated by level. The real issue is whether the national data providers of the countries concerned can be persuaded to deviate, in the interest of international comparability, from the reporting methods they use internally and that they became accustomed to using internationally in the past.

A Note on ISCED Revision

All questions concerning the classification of education expenditures by level are bound up substantively and politically with the ongoing international discussion of revision of the ISCED taxonomy. That discussion, conducted episodically over the last few years under UNESCO auspices, has intensified of late, with UNESCO's stated goal being to draft a new ISCED manual during 1996. Among the main substantive concerns motivating the revision effort are some of those emphasized in this chapter: that the present loose taxonomy is inimical to the development of internationally comparable statistics and that the current ISCED levels do not adequately reflect the education structures of some countries. Another major concern is the lack of provision in ISCED for classifying educational activities along certain dimensions other than level, such as program orientation (i.e., general or vocational education), type of service provider, mode of service provision, and type of student served.

The prospect of pending ISCED revision has discouraged, or at least narrowly constrained, other efforts to improve the taxonomy of levels. Neither the individual countries nor the international organizations have been willing to create new statistical categories that might clash with those of a new ISCED. With the exception of the relatively minor adjustments previously mentioned, the OECD INES project has abstained from redefining levels of education for purposes of its own data collection, even though the weakness of the ISCED definitions reduces the usefulness of the INES statistics. An unsatisfying aspect of the recent, otherwise impressive effort to develop the new UOE data collection instruments is that the structure of levels of education, tied to ISCED, was left largely untouched.

In late 1995, UNESCO presented a proposal for modifying the set of ISCED levels (especially the postsecondary levels), while preserving much of the flexibility and the nonprescriptive style of the current taxonomy.[14] Neither standard durations of levels nor other detailed, operational classification criteria would be imposed. Each country would remain free to interpret the levels in light of its own education structure and to decide for itself which of its programs or institutions to assign to each revised ISCED category. At around the same time, several alternative proposals were offered, some of which called for going considerably further in the direction of standardization and operationalization. One such proposal, sponsored but not necessarily endorsed by OECD, was developed by the author of this report (Barro, 1995).

With respect to education below the tertiary level, there seems to be little desire to depart from the present four-level scheme (i.e., levels corresponding roughly to preprimary, primary, lower-secondary, and upper-secondary education).[15] The key point at issue was and is how the individual levels should be defined: In particular, should the definitions of the constituent levels of primary-secondary education remain flexible, as at present, to accommodate the diversity of national education systems, or should they should be redefined, in the interest of enhancing international comparability, as educational stages of specified duration? The latter approach might entail, for example, fixing the durations of the first and second stages of primary-secondary education at six and three years, respectively, with the third stage covering the remaining years (usually three or four) of the primary-secondary range (Barro, 1995). To adhere to these definitions, countries would have to organize the statistics they prepare for international agencies into categories that do not necessarily correspond to their own national education structures. According to the UNESCO proposal, in contrast, the durations of the individual levels would continue to vary among countries in much the same manner as described earlier, ensuring that the main comparability problems outlined in this chapter would be perpetuated.

229

The situation with respect to tertiary education is different. The strong consensus is that ISCED levels 5-7 need to be replaced with more clearly and operationally defined categories that better reflect the diversity of different countries' postsecondary programs. The question is what set of categories best meets these requirements. UNESCO's 1995 proposal called for a new three-way distinction among "first" and "second" programs of higher education and programs leading to "research qualifications" (doctorates); a cross-classification of "first" higher education programs by duration; and a further distinction between programs leading to "terminal" qualifications and those leading to first university degrees. Other ideas on the table have included creating a new category (ISCED 4?) for postsecondary programs not considered higher education and making cumulative duration the main classification criterion. Until these alternatives are spelled out in greater detail, it will not be feasible to judge their potential effects on the international comparability of education statistics.

As of the spring of 1996, the main taxonomic controversies apparently had not yet been resolved. UNESCO's need to expand the discussion to countries outside the OECD sphere is an important complicating factor. The outcome of the debate is difficult to predict. One of the contending proposals for substantial restructuring may prevail, or disagreement could limit the revisions to modest reform of the existing ISCED, leaving its principal shortcomings uncorrected. The outcome will have a substantial impact on the comparability, and hence the usefulness, of future education statistics.

Notes

1. For EAG1, there was a single category called "not allocated by level," taken to be equivalent to ISCED 9. For EAG2, two separate non-allocated categories were introduced, one covering only funds not allocable within the primary-secondary range, the other covering funds not allocable at all.

2. Under ISCED, the distinctions between regular education and such "nonregular" categories as special and adult education are considered to be along dimensions independent of (orthogonal to) the classification by level of education. In principle, it would be compatible with ISCED to identify separate special education and adult education components of any or all ISCED levels.

3. Note, however, that all else was not the same, because INES asked countries to exclude expenditures for adult education from their EAG2 submissions. Therefore, the total expenditure distributed among ISCED categories for the INES data collection generally should have been less than the total reported on Form UOC2.

4. Specifically, for EAG2 and EAG3, INES compared the expenditure share for a given level of education (expenditure for that level relative to total expenditure for all levels) against the enrollment share for the same level. Recognizing that these relative comparisons would be considerably harder for readers to interpret than direct comparisons of expenditure shares, INES used graphics to show, level by level, the relationship between expenditure and enrollment shares (see, e.g., EAG3, pp. 100-101).

5. Pre-kindergarten education--that is, preprimary education before the year designated kindergarten--is also included in some cases.

6. For example, if German and Japan spent exactly the same amount, say $4,000 per student, on students in the first four years of primary school, but Japan spent 20 percent more than that amount ($4,800) on students in grades five and six of primary school, Japan's average spending per student over the six years of primary school would be (4 x 4000 + 2 x 4800)/6, or $4,267, which is 7 percent more that the $4,000 per primary student that would be reported by Germany. Note that Germany might also spend 20 percent more per student in the fifth and six years of schooling than in years one through four, but expenditures for years five and six in Germany would be classified as spending for lower-secondary education, and hence would not enter into the comparison of outlay per primary student.

7. In addition, expenditure for preprimary education has been separated from expenditure for primary-secondary education. The main reason for this separation, however, is not inconsistency in defining the boundary between preprimary and primary education but rather the more serious inconsistency in defining the starting point of preprimary education, as discussed in Chapter 3.

8. Classifying the second cycles as ISCED 3 rather than as ISCED 5 will raise average spending per ISCED 3 student if the programs in which students enroll for their second cycles of upper-secondary education have higher unit costs, on average, than the programs in which they enroll for their initial cycles. Doing the same will also raise the apparent average

expenditure per ISCED 5 student if the unit cost in the second-cycle upper-secondary programs is less, on average, than in other types of education included in ISCED 5.

9. Our information regarding the nature of the German second-cycle programs is mixed. On one hand, it is said that students sometimes can pursue the same program as either a first-cycle or a second-cycle option--for instance, a university-preparatory (Gymnasium) program first, followed by a technical program or apprenticeship, or the reverse sequence. On the other hand, it has also been indicated that students who have already completed, say, an academic upper-secondary qualification will pursue a more advanced technical program or apprenticeship, or complete it more rapidly, than students entering such a program at age 16, immediately after finishing lower-secondary schooling. It stands to reason that such 16 year-olds would not be studying the same subject matter as 19 year-olds who have already completed three years of upper-secondary schooling, but more information is needed to clarify the situation.

10. Suppose that country B spends $5,000 per year per non-university student and $10,000 per university students, while country A spends 15 percent more at each level, or $5,750 and $11,500, respectively. In country B, with only 10 percent of all students enrolled in non-university programs, the average cost per tertiary student is .10 x 5,000 + .90 x 10,000, or $9,500. In country A, with higher unit costs but 40 percent of all students enrolled in the relatively less expensive non-university programs, the average is .40 x 5,750 + .60 x 11,500, or $9,200, which is about 3 percent less than the average per student outlay of country B.

11. The percentages cited are based on enrollment data for EAG3 compiled by the INES Secretariat. For the purpose of these calculations, each U.S. part-time tertiary student is counted as one-third of an FTE, and each German part-time tertiary student (only a few ISCED 5 students were reported as part-time) is counted as one-half of an FTE. No part-time students were reported by France.

12. Estimation would be very difficult for two reasons. First, it would be necessary to allocate costs on the basis of program and course-level data. A significant complication is that students aiming for two-year qualifications are likely to be distributed quite differently among fields of study than students intending to transfer into four-year programs. Second, it is generally not possible to distinguish in advance between community college students who will earn two-year qualifications (or, more commonly, no qualifications) and those (the small fraction) who will transfer into four-year bachelor's degree programs.

13. Several countries have attempted to separate expenditures for research from expenditures for teaching by collecting sample-survey data on how university teachers and other personnel use their time and then basing the cost allocations primarily on time allotments to the two functions (see Chapter 7 for further detail). In principle, the same general approach could be used to establish shares of staff time, and hence staff cost, for ISCED 6 and ISCED 7 teaching. Among the obstacles to valid allocations would be (1) the fact that university teaching staff generally spend only minor fractions of their time in direct teaching, (2) the entanglement with research, which is closely related to ISCED 7 teaching, and (3) the existence of major, hard-to-allocate cost elements, such as costs of support services and costs of operating multi-use facilities.

14. The UNESCO proposals were first presented in October 1995 in preliminary drafts titled "Conceptual Framework for ISCED" and "Categories of Education." They have since gone through several revisions.

15. There is strong support for building a distinction between general (or academic) and vocational upper-secondary education into the taxonomy, but this entails classifying programs according to an attribute other than level (i.e., according to "program orientation"), and does not affect the classification by level per se.

Chapter 5

THE PUBLIC AND PRIVATE DIMENSIONS OF EDUCATION EXPENDITURES

Countries differ widely in how they divide responsibilities for education finance between the public and private sectors. In some countries, public institutions and public funding sources predominate at every level of education, with private entities playing minor or even negligible roles. In others, private institutions, private funding sources, or both are important, at least at some levels. As examples, both private schools and private funds (mainly tuition fees paid by households) are important at the preprimary level in Germany, Spain, the United Kingdom, and the United States and at the tertiary level in the United States and Japan. In the Netherlands and Belgium, publicly funded private schools are the main providers of primary and secondary education. And, as discussed earlier, training provided and financed by private firms accounts for a large portion of all spending for upper-secondary education in such countries as Austria, Germany, Denmark, and Switzerland.

These variations in public and private financial roles have major implications for international comparisons of spending. Because the private financial contribution varies from large to insignificant, a comparison only of funds from public sources would give a misleading impression of the relative levels at which different countries support their schools. Likewise, because private institutions play leading roles in some countries but negligible roles in others, a comparison of the outlays of only the public institutions would give a false sense of variations in total education spending. Valid financial comparisons require statistics that cover both the public and private sectors.

Moreover, coverage of both the public and private sectors is important not only to ensure proper comparisons of total spending but also because comparisons of the public and private shares of education funding are relevant in their own right. For instance, a vigorously debated issue in some countries is whether or to what degree the costs of education should be borne by the individuals who benefit rather than by society as a whole. International comparisons of the public and private shares of funding should help to illuminate that policy debate. Also of current interest is the question of what role, if any, employers should play in financing the training of their future workers. Here too, comparisons of the diverse national policies regarding employer-provided and employer-funded training should help to advance the discussion. Similarly, ongoing debates over privatization, institutional diversity, the involvement of religious bodies in education, and the desirability of public subsidies for privately controlled schools might all benefit from comparative information on the division of roles--and financial resources--between public and private institutions.

Given the relevance of the public-private dimension, it is a matter of concern that many countries provide incomplete coverage, or sometimes no coverage, of the private side of education spending. The most common statistical shortcoming is the failure to report some or all education spending of households, firms, and other private entities. A closely related problem is incomplete reporting or nonreporting of the expenditures of private educational institutions. The significance of these omissions depends not only on the proportion of private spending left unreported but also on the degree of private-sector participation in education in the country in question. The worst case, obviously, is the combination of substantial private involvement with little or no statistical coverage of private institutions or private funds.

This chapter examines the implications for international expenditure comparisons of incomplete or inconsistent coverage of the public and private sectors of education. Its principal focus is on the problem of uneven coverage of funds from private sources and expenditures of private institutions. In addition, it addresses two related but more specialized problems: (1) the omission by all but a few countries of direct household purchases of personal items used by students and (2) the failure of some countries to report expenditures for public educational institutions not under the jurisdiction of the education authorities--for example, military, police, and civil service academies and schools operated by health or agriculture agencies.

Classification of Institutions and Funding Sources

As background for the subsequent discussion of comparability problems, we comment briefly on two pertinent taxonomic matters: how expenditures are classified by service provider and how they are classified by source of funds (the latter is discussed in greater detail in Chapter 9).

Public and Private Service Providers

Although most students in the OECD countries attend public institutions--meaning institutions owned, controlled, and (usually) operated by government agencies--significant numbers are served by institutions owned, controlled, and operated by private entities. The most important such entities are religious organizations, usually Catholic or Protestant churches; but some schools in some countries are operated by other not-for-profit organizations or (more rarely) for-profit firms. The private shares of enrollment and expenditure vary greatly both by country and by level of education. For example, the fraction of primary-secondary enrollment in private institutions ranges from less than 1 percent in Sweden to more than 65 percent in the Netherlands, and the private share of tertiary enrollment (full-time students only) ranges from near zero in several European countries to about 26 percent in the United States and 80 percent in Japan.

The distinction between public and private institutions is clear-cut in most countries, but a few important ambiguities exist. For example, British universities had been classified (until recently) as public institutions for statistical purposes, but except for the fact that they receive most of their funds from the government, they have few, if any, attributes of "publicness." They are autonomous, self-governing institutions, not owned, managed, or operated by government bodies. In the Netherlands, on the other hand, about two-thirds of the primary and secondary schools are called "private," but these schools are not only government-funded (at the same level as public schools) but also subject to more extensive government controls than the schools designated "public" in some other countries. We do not discuss the definitional subtleties further here, except to note that the degree of public funding is not itself a basis for classifying institutions as public or private. Private institutions can be predominantly or even completely publicly funded, and public institutions can rely heavily on student fees and other private funds. The main point is that differences in the meaning of public and private must be taken into account in comparing the statistical treatment of the private sector of education across countries.

An important distinction within the private education sector is that between private institutions that do and do not receive substantial funding from public sources. In some countries, these two types of private institutions coexist. France, for example, has both private schools *sous contrat* ("under contract" to the state), which are extensively government-funded and government-regulated, and private schools *hors contrat*, which receive little or no public money and are subject to few government controls. Some countries have included private schools of the former type but not schools of the latter type in their statistics. Following the terminology adopted by the INES project in 1993, we refer to the two types of private service providers as government-dependent and independent private institutions, respectively.[1]

Public and Private Sources of Funds

Sources of education funds also can be public or private. Public funds are funds provided by any level of government--central (national), regional (state or provincial), or local. Public funds commonly flow to both public and private educational institutions. A distinction considered very important in some countries is that between public funds provided by public education authorities and funds provided by public agencies whose primary responsibilities lie outside education. The former include national, state, or provincial ministries or departments of education; the education departments of general-purpose local governments, such as municipalities; and, in a few countries, specialized local education agencies. The latter are of two kinds: agencies with primarily noneducational responsibilities but that provide education in certain fields, such as ministries of health, agriculture, and defense; and agencies with responsibilities that cut across education and other fields, such as national or provincial public works agencies that construct and sometimes maintain not only schools but also other types of public facilities.

Private sources of education funds include households (meaning the students themselves or their families) and such other private entities as business firms, unions, associations, religious bodies, foundations, and other nonprofit organizations. Household expenditures consist mainly of tuition fees and payments to educational institutions for ancillary services (housing, meals, etc.) but also include the previously mentioned direct purchases of personal items used in education. The education expenditures of private entities other than households include funds provided to educational institutions through grants and contracts for research or other services, donations in cash or in kind, and direct subventions (as from a church to a church-operated school). They also include scholarships and other forms of financial aid to students provided by private organizations. In addition, there are a few countries in which other forms of private spending pale in importance compared with the expenses incurred by private firms to educate apprentices and other trainees in the work place (as already discussed in Chapter 3).

The following matrix illustrates the cross-categorization of education expenditures by source of funds and service provider. It provides a guide to the subsequent discussion of the coverage of public and private expenditures in each country's education expenditure statistics. A key point to keep in mind is that all types of educational institutions--public, government-dependent private, and independent private--can, and usually do, receive funds from multiple public and private sources. Therefore, if funds from private sources are not covered fully in a country's statistics, the expenditures of public as well as private institutions may be understated. Note also that households, as direct purchasers of educational goods and services, may receive funds from various public and private sources.

Classification of Expenditures by Service Provider and Source of Funds

	Source of Funds			
	Public Sources		Private Sources	
Service Provider	Education Authorities	Other than Education Authorities	Households	Other Private Entities (Firms and Non-profit Organizations)
Public institutions				
Private institutions				
Government-dependent private institutions				
Independent private institutions				
Households (as direct purchasers)				

Data Gaps and Their Implications for Comparability

Comparability problems stemming from incomplete coverage of private funds or private institutions are among the few that cannot be blamed to any significant extent on ambiguous instructions from the international agencies. Both the UOC and INES data collection instruments call for reporting funds from private as well as public sources, and expenditures of private as well as public institutions. Form UOC2 contains a set of four tables, designed to allow separate reporting of expenditures in the following categories: (1) public expenditure on public education, (2) public expenditure on private education (subsidies), (3) private expenditure on private education, and (4) private expenditure on public education. Although many countries lack all the requested data and have left the last two, or even the last three of the four tables blank, the structure itself leaves no doubt of the data collectors' intention to take the private elements of education finance into account in international comparisons of education spending.

In the same spirit, the INES instructions for reporting finance data for EAG2 (OECD, 1992) begin with the statement that "total education expenditure . . . includes current and capital expenditure on both public and private education by both public and private sources." The same instructions also call for inclusion of all four of the expenditure categories listed above. Further, they list the main private sources of education funds (households, non-profit organizations, and firms) and provide examples of specific types of includable private spending (school fees, costs of materials and equipment, payments for meals and transport to school, and employer expenditures for initial vocational training). If there is any small element of ambiguity, it concerns the appropriateness of counting direct purchases by households as education expenditures, but even that item can be considered at least partly covered by the reference to private spending for materials and equipment. One can say, therefore, that such gaps as exist in the coverage of private expenditures are due to shortcoming of the individual-country statistics, not to doubts about what the international agencies want.

It should be noted, however, that although OECD asked countries to include the outlays of both public and private institutions in their data submissions for EAG2, it made no provision for separate reporting of expenditures for public and private institutions. The INES data tables called only for the distinction between funds from public and private sources. In this respect, the INES instrument was less satisfactory than Form UOC2. Subsequently, after the failure to disaggregate spending by type of institution was identified as a weakness of the INES finance statistics, the necessary distinctions were added to the data collection forms for EAG3 (see below).

The causes of incomplete statistical coverage of the private side of education finance are to be found partly in the legal and political spheres but more importantly in the designs of national education statistics systems. The legal aspect is that some private educational institutions in some countries do not fall under the jurisdiction of national education agencies or statistical offices, and hence are neither asked nor obliged to submit financial information to the public authorities.[2] Usually, however, this restriction applies only to independent private institutions, which account for a small percentage of enrollment in most countries. It does not apply to the much larger government-aided private school sectors of such countries as Belgium, France, Spain, and the Netherlands. But even where there are no legal impediments, the education statistics agencies of some countries have chosen to limit their finance data collections to funds for which the public sector is responsible. Narrowly defined, that category includes only funds from public sources; more broadly defined, it includes funds from public sources plus other funds received by public schools. In the latter case, only private funds for private schools are excluded; in the former, no private education expenditures are reported.

There is a close relationship between the kinds of data sources used by a country's statisticians and the coverage of private funds in the country's statistics. As explained in Chapter 2, expenditure data are obtained from three types of information sources--government budgets, surveys of educational institutions, and, less commonly, surveys of households. An institutional survey is likely (or at least has the potential) to collect data on all funds flowing into or out of educational institutions. In contrast, budgetary documents never (in our experience) cover private funds for private institutions and may or may not cover private funds received by public institutions. Countries vary in the latter regard. The Austrian and German budget systems provide information on the total (gross) expenditures of public institutions, including the portions financed through private fees and other private payments. Budgets in the Netherlands, on the other hand, cover only publicly generated funds. In the United Kingdom, payments from private sources have been excluded deliberately (netted out) from reported expenditures for public primary and secondary schools.

One also encounters more complicated, mixed situations. Some countries that obtain their basic finance data from government budgets also obtain supplementary data on particular types of institutions or funding sources from institutional or household surveys. By piecing together budget data on public subsidies and household-survey data on tuition payments, a country may be able to produce near-complete figures on spending for private schools, lacking only the figures on contributions from private sources other than households. Thus, coverage of the private aspects of finance is not an all-or-nothing matter. A country may have reasonably good finance figures for its government-dependent private institutions but none for its independent private institutions, or it may be able to report private funds for some levels and types of education but not for others.

Incomplete statistical coverage of the private components of spending may result not only in understatements of some countries' total education spending but also in distortions of other expenditure comparisons. Because the degree of reliance on private funding varies by level of education, the omission of private funds may result in misrepresentation of a country's distribution of funds by level, and hence misleading comparisons of such distributions among countries. For example, if a large fraction of preprimary funding consists of fees paid by families, while other levels of education are predominantly publicly funded (a not uncommon situation), the omission of private outlays will make the preprimary fraction of total education spending look smaller than it really is. The omission of expenditures of private employers for training apprentices in the work place would result in gross understatement of the upper-secondary share of total education spending in the countries that rely heavily on such training. Obviously, an indicator of the public and private shares of education funding would be undercut by gaps in the coverage of private funding, as would an indicator of the distribution of funds among public, government-dependent private, and independent private institutions.

Incomplete coverage of private funding also leads to problems in measuring and comparing expenditure per student. The reason is that the numerator (expenditure) and the denominator (enrollment) in the expenditure-per-student calculation are likely to be mismatched. For EAG2, enrollment data were reported by type of institution (public, government-aided private, independent private), while expenditure data were reported by source of funds. Consequently, spending per student could not be calculated correctly for any type of institution in any case where a significant amount of private spending had been omitted. Dividing total expenditures (public plus the underreported private) by total enrollment (in all types of institutions) would understate spending per student. Dividing funds from public sources by enrollment in public institutions would either (1) understate spending per student if private funds for the public institutions were omitted or (2) overstate spending per student if public subsidies for private institutions were included in the numerator. The realization that such mismatches were occurring helped convince OECD to add a breakdown of expenditures by type of institution to the finance data collection for EAG3.

A form of private spending covered by only a handful of national statistics systems is direct purchases of education-related goods by households. Direct purchases refers to the acquisition by students or their families of personal items used in education, such as school supplies, books (other than those provided by the schools), computers and calculators, school uniforms, art materials, and athletic equipment. Because households usually purchase such items from ordinary retail stores or other private-market suppliers, they do not appear in either governmental or institutional budgets.[3] Normally, they can be captured only by household surveys specifically designed for the purpose. The education outlays of the few countries able to estimate direct purchases from such surveys are likely to be inflated (by perhaps two to four percent) relative to those of other countries.

Finally, although this chapter deals mainly with gaps in statistical coverage of the private sector, it also addresses a parallel problem of coverage of private spending--the failure of some countries to report the education expenditures of certain types of public educational institutions, sometimes merely because the institutions fall outside the jurisdiction of the designated education authorities. Among the likely-to-be-omitted types of institutions are military, police, and civil service academies; schools operated by health or agriculture ministries; open universities or other distance-education institutions; and early childhood or adult education institutions operated by noneducation departments of municipalities and other general-purpose local governments. Naturally, such omissions result in understated expenditures and sometimes in miscalculated expenditures per student.

Findings Concerning Individual Countries

The following paragraphs describe each country's statistical coverage of funds from private sources and expenditures of private institutions. Also mentioned are any exclusions of particular types of institutions, public or private, from the purview of the education statistics. Where statistics on direct household purchases are available, the fact is noted; if the matter is not mentioned, it should be assumed that no such statistics exist. Certain aspects of the private side of education finance are touched on only briefly here because they are discussed in more detail elsewhere: public subsidies for student living expenses (see Chapter 7), household expenditures for preprimary education (see chapter 3), expenditures of private employers for training apprentices (see Chapter 3), and fees paid by students for ancillary services (housing, meals, etc.) provided by educational institutions (see Chapter 6). Except as otherwise noted, the following comments pertain to statistics submitted to INES for EAG2.

Australia

The importance of private funds, the role of private institutions, and the statistical coverage of both vary by level of education. The EAG2 expenditure statistics for public preprimary, primary, and secondary schools, which are funded predominantly by the states, cover only funds from state sources. Both the small fees paid by parents and the small contributions of local governments (the two together amounting to no more than five percent of spending) have been omitted. However, the expenditure statistics for private schools at the same levels, which derive from institutional surveys, cover funds from both public and private sources. It should be noted, however, that some independent private institutions do not participate in the financial surveys.

Australia's EAG2 data for the TAFE (technical and further education) sector are incomplete in several respects. The data on public expenditures cover outlays of the state authorities responsible for vocational education and training but omit expenditures of other government departments. Student fees and payments from businesses are covered only partially and in a manner that varies by state. The distinction between funds from public sources and funds from private sources is not always made consistently.

Australia obtains its statistics on the expenditures of public institutions of higher education from an institutional survey. The data cover funds from all public and private sources, except that expenditures for ancillary services for students (usually provided by independent auxiliary enterprises) are reported net of student fees. The minor amounts expended by Australia's few private institutions of higher education are not reported.

Australia has made significant changes in its finance statistics since EAG2. Government budget data on funds from public sources are now supplemented with data on private spending from the national accounts database and data from various institutional collections. The coverage of vocational education and training has been substantially improved. As a result, Australia is now able to estimate private as well as public outlays for primary, secondary, non-university tertiary, and university-level tertiary education.

Austria

The Austrian expenditure statistics, derived from budget figures, generally cover the gross expenditures of public educational institutions, regardless of source of funds. The data on private spending for public institutions derive from institutional records on income

BEST COPY AVAILABL

received. Government budgets also provide data on public subsidies to private institutions, but not always broken down by level of education. Thus, the Austrian data generally cover public and private funds for public institutions and public funds for private institutions; only private funds for private institutions are excluded. However, there are exceptions in two areas: preprimary and adult education.

Because preprimary education is not considered part of the education system in Austria, fees paid by families to public kindergartens (run by Länder or localities) may not be counted as education expenditures. In the case of private kindergartens, only public subsidies are reported; funds from households and other private sources (e.g., religious organizations) are omitted. The result is substantial understatement of Austria's preprimary expenditures.

At the primary-secondary level, the private funds expended to maintain government-dependent private schools (mainly church-affiliated) are omitted, as are the full costs of the few non-aided independent schools. Also omitted are private payments, such as student fees and contributions by the chambers of employers and labor, for various types of adult and continuing education. These omissions pale into insignificance, however, compared with the omission of the large expenditures of private firms for training apprentices under the dual system. The latter omission, discussed in Chapter 3, results in serious understatement of Austrian spending for secondary education.

The statistics on expenditures of universities and other tertiary institutions generally include funds from both public and private sources, with the possible exception of some private payments to private ISCED 5 institutions. However, the coverage of expenditures for university dormitories and dining halls (operated as private nonprofit organizations) is limited to public subsidies; the portion of revenue derived from student fees goes unreported.

Certain public institutions are excluded entirely from the Austrian education finance statistics. The omitted items include, at the federal level, the expenditures of military, police, and civil service academies and, at the Land and local levels, expenditures for locally operated music schools and adult education institutions. The amounts involved probably are minor.

Canada

Canada has surveys of the expenditures of public institutions, surveys of the expenditures of private institutions, and a survey of household expenditures. Consequently, it offers more comprehensive coverage of private funds and private institutions than most other OECD countries. The surveys covering public and private preprimary, primary, and secondary institutions provide data on both the revenues and the outlays of local school boards. The revenue figures show funds from all sources, including fees paid by parents for ancillary services and, in the case of private schools, tuition fees. The outlay figures show total outlays, without regard to source of funds. There are only minor gaps in the coverage of institutions--e.g., the omission of some independent private preprimary schools. Almost a complete four-way breakdown of expenditures--public and private funds for public and private schools--can be produced. In addition, the availability of household survey data makes Canada one of the few OECD countries able to include direct household purchases of education-related items in its education expenditure figures. (But note that the Canadian data, though comprehensive, have not been disaggregated adequately by level--see Chapter 8.)

Canada collects expenditure data on tertiary education from surveys of individual institutions, which cover universities, community colleges, technical institutes, and other types of schools. These surveys generally cover all institutional expenditures and all public and private funding sources. The one notable exception is that expenditures for ancillary services (student housing, meals, etc.) are reported on a net rather than a gross basis, which means that fees paid by students for these services have been omitted from education expenditures (see Chapter 6).

France

The French national statistics break down education expenditures by both service producer and source of funds. The producers include public institutions, government-funded private institutions, and independent private institutions. The sources of funds include the various levels of government, households, and enterprises. In principle, therefore, the data should encompass all public and private expenditures for both public and private institutions. Moreover, a special sample survey of households, involving the use of diaries to record education-related expenditures, allows France to report direct household purchases of at least some categories of educational goods and services.

In practice, some limited gaps exist in the coverage of the finances of the private sector. For example, the outlays of independent private institutions at the ISCED 0-3 levels may be under-reported (in particular, the outlays of private suppliers of special education), and some independent providers of occupational training (proprietary institutions) and education in the arts may not be covered by the expenditure statistics. Such omissions are very minor, however, both absolutely and compared with the omissions of most other countries.

Two larger-scale omissions of private funds are intentional--the exclusion of private funds for research at institutions of higher education, along with other external research funding (see Chapter 7) and the exclusion of employers' costs of training apprentices. The issue in these cases is not that the funds in question are private but rather that they are for activities deemed to lie outside the bounds of education.

In the French case, private expenditures for education may actually have been over-reported, in the sense that some of the reported private outlays are for activities outside

OECD's definition of the scope of the education sector. For instance, France's education expenditures apparently have included include the costs of internal training centers operated by businesses and other private organizations and may have included other funds expended by companies to train their employees.

Germany

The German expenditure statistics, derived mainly from government budget figures, generally cover the gross expenditures of public institutions, including funds obtained from private sources. For EAG1 the public and private funds were not separated, but for EAG2 the funds from private sources were reported separately, though not broken down by level of education. Private funds for private education generally have been excluded from Germany's UOC and INES submissions, but with one very important exception: The reported expenditures figures for upper-secondary education include massive outlays of private firms for training and compensating dual-system apprentices (as already discussed in Chapter 3).

A major gap in the coverage of private expenditures occurs at the preprimary level. The expenditures of private kindergartens (which enroll a majority of the country's preprimary pupils) are included in the German statistics only to the extent that the funds derive from public subsidies; payments by parents and other private contributions (e.g., from churches) have been omitted. As a result, the EAG2 figures on German preprimary expenditures represent only a fraction of total spending in that category.

The German figures on expenditures for primary and secondary education exclude the small fraction of the funds of publicly-aided private schools derived from private sources. In addition, the expenditures of some completely private educational institutions are missing entirely. Among the excluded institutions are schools providing specialized types of vocational instruction for persons who have already obtained upper-secondary qualifications and schools of adult education.

Although the estimated private costs of training apprentices have been included, some other private expenditures for the dual system seem to have been omitted--for instance, private funds for operating inter-plant centers for training apprentices and expenses incurred by the non-governmental "competent bodies," such as chambers of industry and commerce, that supervise work-based training and administer examinations.

Missing items at the tertiary level include the expenditures of the few private institutions of higher education and scholarships provided to tertiary students by such private organizations as churches, industry groups, and foundations (even though some such scholarships are subsidized indirectly by the federal government).

Netherlands

The Netherlands expenditure figures cover public expenditures and selected private expenditures, but some categories of private spending have been omitted. The Netherlands is unique among the countries examined in that the larger part of its preprimary through upper-secondary education--about two-thirds of the total--is provided by government-dependent private schools. Although these private schools are publicly funded at essentially the same level as public schools, they also receive some financial contributions from parents. No data have been collected on these payments from households, but the Netherlands authorities suggest they may add something in excess of five percent to the sector's public funding.

Excluded from the Netherlands statistics are the expenditures of independent private secondary schools (these consist entirely of funds from private sources) and outlays of commercial vocational schools, but both types of institutions serve only small numbers of students, and the amounts involved are minor. Also excluded are expenditures of private employers for training apprentices and contributions by private firms and associations to senior vocational-technical education (MBO) and other vocational training programs.

At the tertiary level, the main omitted items appear to be the expenditures of independent private schools offering specialized programs (e.g., business management programs), revenues derived by institutions of higher professional education (HBO) and universities from contracts for educational and other services, funds received by the open university from sources other than the central government, and research funds obtained by universities from private grants and contracts. Also, military and police academies and perhaps other specialized government institutions are omitted entirely from the education statistics.

The Netherlands expenditure figures do include the fees paid to secondary and tertiary institutions by students who do not receive offsetting financial aid from the government. The fees paid by students eligible for aid are also included in secondary and tertiary expenditures, but these payments can be construed as an indirect form of public funding, in that they are fully offset by government scholarships.[4]

Spain

Spain has assembled its education expenditure figures by combining government budget data with both household survey data and data from occasional surveys of private educational institutions. The combination provides near-comprehensive coverage of funds from public and private sources and expenditures of public and private institutions (except for omissions of specific types of spending, such as certain pension and research outlays, which are discussed in other chapters). However, the need to merge the less-than-fully-compatible types of data, coupled with the limited detail and frequency of the institutional and household surveys, has made it necessary to rely on allocation and proration methods to distinguish

BEST COPY AVAILABLE

between spending for public and private institutions and to break down expenditures of private schools by level of education.

The household survey data cover both household payments to schools (tuition fees, etc.) and direct household purchases of personal items used in education. Consequently, Spain is one of the few countries whose statistics cover direct household purchases as well as institutional expenditures.

Spain compiles its statistics on the expenditures of universities from institutional budgets (Spanish universities are autonomous bodies, with their own financial accounts). The expenditure figures reflect funds from all sources, including student fees and funds received from firms and other private sources. Thus, there is full coverage of public and private expenditures for ISCED 6/7 education (other than certain research funds, as discussed in Chapter 7). However, Spain also has some independent private vocational and professional schools (ISCED 5), for which expenditures are not reported.

Sweden

Although Sweden included only expenditures from public sources in its EAG1 and EAG2 submissions, the omission of private funds had only minor effects on the results. This is because, first, Sweden has only a few private institutions, enrolling a very small percentage of students and, second, in the absence of tuition fees (for regular education), private funds account for only a very small portion of the outlays of public institutions. Nevertheless, recognizing that the addition of private expenditures would make a non-negligible difference in some areas, the Swedish authorities decided to report certain private outlays for EAG3. Among the items added are fees paid to preprimary and adult education institutions, the expenditures of a small number of independent private institutions, and payments from private firms to universities for research and other purposes.

United Kingdom

In general, both the United Kingdom's published statistics on education spending and its UOC2 and INES submissions have included only the publicly financed expenditures of public education agencies. All funds from private sources have been excluded, as have some public funds provided by noneducation agencies. As a result, the expenditures for some levels of education--most notably, preprimary and higher education--are seriously understated, and the expenditures of some categories of institutions are omitted entirely. In some cases, data exist that could partially fill the gaps. The details vary by level of education as follows:

The finances of public preprimary (nursery) schools and classes operated by LEAs are covered in the same manner as those of public primary and secondary schools (see below). Excluded from the UK statistics, however, are all expenditures of independent preprimary schools, both public and private funds for day nurseries operated by public bodies other than the education authorities, and expenditures (mainly from private sources) of registered playgroups. The latter two types of institutions account for roughly half of all preprimary activity. Even if these institutions were deemed "educational," which they currently are not, it seems clear that most of their expenditures would be omitted anyway, simply because they derive from private sources.

A small share, about three to four percent, of the funding of public primary and secondary schools comes from private sources, mainly in the form of tuition fees and payments for meals and other ancillary services. These outlays have been netted out of the UK expenditure figures and consequently have not been included in the UOC2 and INES data; however, this gap could easily be filled, as the data are available. Also omitted are the private funds received by "voluntary" schools (mainly church-affiliated schools under the jurisdiction of LEAs). It is not clear whether data on these funds are available. Expenditures of independent private schools, which enroll about seven percent of all primary and secondary students, are excluded from the UK data (with the minor exceptions that public subsidies for low-income students and public payments to private schools for the handicapped are included).

At the tertiary level, it appears that at least one-third of all university funds have been omitted, either because they come from private sources (student fees not offset by government awards, private donations, grants and contracts from firms and other private entities) or because they are government funds from noneducational agencies (mainly grants and contracts for research and other services). The same types of funds have also been omitted from the expenditures of non-university tertiary institutions. In the case of the universities, expenditure figures that include the aforementioned missing items have been published by a quasi-official body.[5] It appears that similar unpublished figures for other tertiary institutions also exist. The UK figures exclude the expenditures of public tertiary institutions considered to lie outside the education sector, most notably schools for training nurses and medical paraprofessional operated by the Department of Health but also military and police academies and perhaps other such institutions.[6] Also excluded are independent private institutions, including one private university and various colleges. In sum, the gaps in the UK tertiary expenditure statistics are very large, making the results unusable for international comparisons.

United States

The United States obtains its expenditure data mainly from surveys of the producers of educational service providers--principally local education authorities (LEAs) and individual tertiary institutions. The data cover both the revenue and expenditure sides of LEA and institutional budgets. The revenue figures include funds from all sources, both public and private. Problems of statistical coverage arise mainly from the omission of whole subsectors or categories of institutions. The details vary by level of education, as follows.

At the preprimary level, a distinction must be made between kindergarten and pre-kindergarten education. The spending of public and private kindergartens attached to primary schools is covered in the same way as the spending of primary and secondary schools (see below). However, no data are available on the expenditures of private pre-kindergartens, the main institutions serving children ages four and younger, except to the extent that such expenditures are covered by federal subsidies.[7] For this reason, expenditures for private pre-kindergarten education were omitted from the U.S. submission for EAG2; however, rough estimates have been provided for EAG3.

Only about two to three percent of the funding of public primary and secondary schools comes from private sources, mainly in the form of fees for meals, transportation, and other ancillary services. These private funds have been included in the U.S. data. Private primary and secondary schools, which enroll about 11 percent of all primary and secondary students, are almost entirely privately funded, except for minor, special-purpose public subsidies and payments to private providers of special education. The U.S. collects no data on the finances of private primary and secondary schools. For its INES submissions, however, the U.S. provided rough expenditure estimates for that sector, generated from data on numbers and salaries of private school teachers.

The U.S. data on tertiary expenditures come from a survey of institutions of higher education, which covers public and private institutions alike. Thus, in contrast to the situation at the ISCED 0-3 levels, the expenditures of private institutions are fully covered. Missing from the U.S. data, however, are expenditure figures for "non-collegiate" postsecondary institutions, which are non-degree-granting, mostly for-profit ("proprietary") suppliers of mainly occupational training courses. Also excluded are expenditures for ancillary services (mainly financed by student fees) and estimated subsidies for student living expenses (see Chapters 6 and 7, respectively).

The U.S. did not provide any figures on direct household purchases for EAG2, but estimates derived from a household survey have been included in the data for EAG3.

General Findings and Implications for Comparability

Incomplete reporting of private expenditures is one of the more pervasive comparability problems. It affects the expenditure statistics of most countries and all levels of education. Other things being equal, the total expenditures of countries that omit significant amounts of private spending will be understated relative to those of (1) countries with comprehensive data on expenditures from private sources and (2) countries with no significant private expenditures to report.

Three of the ten countries covered by this study, France, Spain, and Canada, provide fairly comprehensive coverage of funds from private sources. The key enabling factor in each case is that the country is able to draw on institutional and/or household survey data in addition to (or instead of) data from government budgets. Sweden is the best example of a country with little private spending to report. Although Sweden omitted all private spending from its EAG2 submission, the omitted amounts were too small to have significant effects on international comparisons. Next in line in this respect is the Netherlands (notwithstanding the very large role played by private institutions in that country). The main omissions from the Netherlands data are private contributions to the government-funded private schools and fees paid to independent schools, both accounting for only small percentages of spending. The five countries just mentioned are those whose relative spending levels will appear misleadingly high (other things being equal), compared with the countries that seriously under-report their private spending.

The country that most seriously underreports private spending for education is the United Kingdom, which has intentionally excluded all funds from private sources from both its own published expenditure statistics and its data submissions to international agencies. The result (holding other factors constant) is that the UK expenditure figures are likely to be misleadingly low relative to those of most other countries, and especially relative to those of the countries named in the preceding paragraph. It appears, however, that the UK could use data already in hand to fill some of the present gaps--especially the omissions of private funds for ISCED 1-5 public institutions and private payments to institutions of higher education.

The remaining countries occupy in-between positions with respect to their coverage of private funding sources and private institutions, with data gaps usually concentrated at particular levels of education. Although Australia draws its data from institutional surveys as well as government budgets, significant gaps exist in the coverage of the TAFE sector, and private funds for public ISCED 0-3 schools have been omitted. Austria, Germany, and the United States all depend heavily on private preprimary institutions and on fees paid by the parents of preprimary pupils. Each country lacks data on a substantial portion of its private preprimary expenditures (the same applies to the UK, in addition to the more general problem mentioned above). Austria and Germany have excluded both private payments to government-dependent private schools and the outlays of independent private institutions, resulting in significant but not large-scale under-reporting of ISCED 1-5 expenditures. Of course, this abstracts from the larger problem of omitted employer expenditures for training apprentices. Taking that omission into account would place both Germany and Austria high on the list of countries that have significantly underreported private spending for education.

Although the United States collects no data on the finances of its sizeable independent primary and secondary sector, it has nevertheless provided expenditure figures to INES, using estimates based on numbers and salaries of teachers. To our knowledge, no other country has followed a similar approach. Also, the United States, like several other countries, has thus far excluded the expenditures of its "proprietary" (commercial) postsecondary institutions.

The foregoing remarks do not refer to categories of private funding that countries have deliberately excluded from their expenditure statistics for reasons other than that the money comes from private sources. Among the items so excluded are private research funds and private payments for student housing, meals, and other ancillary services. Note that the three countries that otherwise offer the most comprehensive coverage of private spending--Canada, France, and Spain--all report expenditures for ancillary services net of student fees, and the latter two exclude private research funding as well. Because it seems more useful to examine the research and ancillary services issues separately than to entangle them with the general issue of private funding, we defer consideration of these items to later chapters.

Canada, France, and Spain are also the only countries examined that included direct household purchases in their EAG2 figures (the United States has joined them for EAG3). Each obtains the data on direct purchases from a household survey. Other countries also conduct household surveys that may cover direct purchases but have been reluctant to report such outlays, either because the surveys are too old or because the survey categories are insufficiently detailed.

Finally, national decisions to exclude certain types of public institutions from the education statistics generally have detracted only slightly from international comparisons because the omitted categories are usually small. The most common exclusions seem to be of institutions that train military and police officers and civil servants. The United Kingdom's exclusion of the institutions that train nurses and paramedical personnel is in a different class, however, because such institutions account for a significant share (on the order of 10 percent) of tertiary enrollment. Note that these remarks do not refer to the larger problem of the omission from some countries' statistics of the expenditures of public institutions that provide adult and continuing education. That problem has already been addressed in Chapter 3.

Changes to Date and Options for Further Improvement

The principal problem addressed in this chapter--incomplete and inconsistent coverage of private expenditures--does not stem from flaws in the international definitions and hence cannot be cured by definitional improvements. OECD and UNESCO have made it clear all along that expenditure statistics should include outlays of both public and private institutions and funds from both public and private sources. However, the INES finance data collection instruments for EAG1 and EAG2 lacked a feature necessary for collecting adequate data on the private aspects of education finance: There was no provision for separate reporting of the expenditures of public and private institutions. It was important that this provision be added, not only to permit breakdowns of spending by type of service provider but also to allow correct calculations of expenditure per student.

As part of the general redesign of the finance data collection instrument for EAG3, INES made several changes affecting the public-private dimension of education expenditures. The hitherto missing breakdown by service provider was added. Specifically, INES added new provisions for separate reporting of the expenditures of public, government-dependent private, and independent private institutions. This addition allowed, for the first time, for a full cross-classification of expenditure for each level of education by service provider and source of funds. The accompanying instructions include detailed definitions of the three types of service providers and the various funding sources. The revised instrument allowed for explicit reporting of a variety of financial flows within and between the public and private sectors, including public subsidies to private institutions and both public and private financial aid to students. It also provided a place to report direct purchases by households. All these changes have been incorporated into the 1995 UOE expenditure questionnaire. Given these developments, there is little more that the international agencies can accomplish with improved definitions and instructions to fill the gaps in data on private spending. Encouragement, persuasion, and technical assistance still are possibilities. Otherwise, further progress is up to the national data providers.

What steps need to be taken by the countries concerned? Normally, the reason that private expenditures are not reported to OECD is that they are not covered by the country's own internal data collection system. (The other possible cause, that funds from private sources have been intentionally netted out, is readily correctable.) More specifically, where the missing item is private funds for private institutions, the usual reason for the omission is that the country in question has no survey of the finances of those institutions. The preferred solution would be to establish such a survey, but this is unlikely to occur unless the country perceives a reason of its own for obtaining the data, beyond the desire to accommodate an international data collection agency.

Of the ten countries examined, it appears that only two, Canada and France, conduct regular surveys of the finances of private institutions at all levels. Australia has surveys covering some levels and sectors but not others. The United States conducts an annual finance survey of private institutions of higher education but collects no financial data from private preprimary, primary, or secondary schools. Spain conducts its surveys of private institutions only at infrequent intervals. Sweden cannot be said to need such a survey because it has so few private institutions. The remaining countries--Austria, Germany, the Netherlands, and the United Kingdom--generally do not derive their official education finance statistics from institutional surveys.[8] Consequently, although they have data on public subsidies to private institutions, they cannot quantify the total expenditures of the private institutions or provide any information about how such institutions use their funds. Interest has been expressed in the United States, and apparently in Germany, in conducting surveys of the finances of private primary and secondary (and perhaps preprimary) institutions, but whether or when this will actually happen is uncertain.

In the absence of institutional surveys, two other possibilities exist for generating figures on expenditures of private institutions and funds from private sources. One approach, now used by Spain (and in some respects by Canada), is to obtain some of the required information from household surveys. In principle, this method could produce adequate data on tuition payments and other fees paid by households to institutions, but the lack of sufficiently detailed breakdowns by level of education and type of institution may limit the usefulness of household survey data in practice. Moreover, a household survey, by definition, cannot yield information about the education expenditures of firms, religious organizations, and other private entities.

The second alternative, demonstrated by the United States, is to estimate private expenditures using data on pertinent attributes of the private institutions. In the U.S. case, the spending estimates for independent primary and secondary schools are produced by multiplying the number of teachers at each level by the corresponding average teacher salary and then applying assumptions (based on public-sector analogs) regarding the ratio of expenditures for teachers to the total cost of schooling. The method is relatively crude (although some refinement should be possible), but relying on such estimates is arguably better than reporting no private spending at all. The issue has not yet been clarified of when it is appropriate for countries to use estimates to fill what would otherwise be significant gaps in their expenditure figures. Some national data providers have been reluctant to produce estimates, preferring instead to indicate that data are not available. The UOE instructions generally encourage estimates but do not explain when estimation is appropriate or how good the estimates must be to justify inclusion in national data submissions. No attempt has been made to identify or disseminate acceptable methods for accomplishing specific estimation tasks, such as estimating the expenditures of private schools for which there are no expenditure data. This is an area in which further activity by the international agencies could help to advance the state of the art.

Notes

1. According to the most recent instructions on the matter, those accompanying the UOE finance data collection forms (OECD, 1995b, p. 1-36),

> A government-dependent private institution is one that derives a substantial portion of its funding from government agencies. An independent private institution is one that derives no more than a minor share of its funding from government agencies. More specifically, institutions should be classified as government-dependent if (1) their teaching personnel are paid by a government agency (either directly or through reimbursement) or (2) a majority (over 50 percent) of their core funding comes from government agencies. "Core funding" refers to the funds that support the basic educational services of the institutions. It does not include funds provided specifically for research projects, payments for services purchased or contracted by private organizations, or fees and subsidies received for ancillary services, such as lodging and meals.

2. Note, however, that countries often consider it appropriate to collect enrollment information from private institutions even when financial information cannot be requested. Moreover, private educational institutions, like other private producers of goods and services, normally are covered by national economic statistics, although these usually do not provide nearly as much detail as would be requested for education statistics.

3. Note that purchases of books, materials, etc. from stores operated by educational institutions (e.g., university bookstores) should be considered direct household expenditures, not payments to educational institutions.

4. See Chapter 9 for further discussion of the Netherlands system of tuition fees and offsetting government scholarships (and the similar system of the United Kingdom).

5. An organization called the University Statistical Record collected both revenue and expenditure data from the individual institutions and published compilations separate from the official government statistics. This organization ceased operation in 1995, but a successor body is expected to produce statistics covering not only the old universities but also the former polytechnics (now redesignated universities) and other institutions of higher education.

6. It appears that the enrollments of the Department of Health institutions have been included in the UK data submissions to INES, even though the corresponding expenditures have been excluded.

7. The principal federal subsidy program, known as Headstart, provides funds for preprimary programs serving low-income children. These funds flow to a variety of recipients, including local education agencies, other public-sector service providers, and private providers. The share of aid flowing to private institutions can be estimated, but data are not available on the amounts of private funds available to the same institutions.

8. As already noted, the independent University Statistical Record in the United Kingdom has collected data from individual universities, but these figures have not been used to develop the official national expenditure statistics. Similarly, the Netherlands apparently receives expenditure statistics from individual tertiary institutions that are not reflected in national expenditure figures.

Chapter 6

EXPENDITURES FOR PARTICULAR FUNCTIONS, SERVICES, AND COST CATEGORIES[*]

In addition to the comparability problems stemming from nonuniform coverage of whole educational sectors, classes of institutions, and funding sources, other problems arise from inconsistent treatment of expenditures for particular functions, services, or cost categories. Although the financial statistics of all countries include expenditure items indisputably central to the educational enterprise, such as teachers' salaries and outlays for instructional materials, the consensus as to what to count as spending for education sometimes breaks down as one moves outward from the core. Specifically, countries differ in whether, to what degree, and in what manner their expenditure statistics cover such items as the following: administrative expenses (especially above the level of the individual school); support services, such as maintenance of school buildings; such ancillary services as student transportation, meals, and housing; the nonsalary portions of personnel compensation, including pension payments and health insurance premiums; and such arguably noneducational functions of educational institutions as research, patient care in university hospitals, and operation of student residences.

The discussion of these aspects of the expenditure statistics is divided between two chapters. This chapter deals with issues that either cut across all levels of education or pertain primarily to education below the tertiary level--namely, coverage of expenditures for administrative and other support functions, ancillary services, and nonsalary portions compensation. The issues that pertain exclusively or mainly to tertiary education are taken up in Chapter 7.[1]

---

[*] The sections of this chapter dealing with expenditures for administrative and other support functions, expenditures for ancillary services, and employee fringe benefits other than retirement incorporate material from an earlier draft by Dr. Joel D. Sherman of the Pelavin Research Institute.

Expenditures for Administrative and Other Support Functions

"Support functions" are defined, for purposes of this discussion, as functions other than teaching itself that are necessary for the teaching (i.e., instructional) function to proceed. In contrast, ancillary services are defined as services that are neither themselves educational (i.e., instructional) nor technically necessary for the production or delivery of instructional services but that commonly are provided to students by or at educational institutions. Expenditures for ancillary services are considered separately in the following section of the chapter.

Generally, the most expensive support function is operation and maintenance of school buildings (or, more broadly, the physical facilities of educational institutions). Another major support function is administration, which embraces both administration at the level of the individual educational institution and administration at higher levels (e.g., municipal, provincial, and national). The support category also includes such things as curriculum development, inspection, and in-service training of teachers, plus such teaching-related services as academic guidance, vocational counseling, and assessment of student performance.
It can be debated whether health and psychological services for students should be classified as instructional support services or ancillary services. For reasons of convenience (and without prejudice to the debate), we have assigned them to the ancillary category.[2]

Countries differ in the degree to which their expenditure statistics cover spending for administrative and other support functions. The degree of coverage depends strongly on how responsibilities for the various support functions have been assigned. Often, the decisive factor is whether the same public agencies as are responsible for the basic teaching function are responsible for support services as well. In addition, coverage depends on national statistical practices, especially with respect to inclusion of the education expenditures of primarily noneducational agencies.

Three patterns of assignment of responsibility can be distinguished. In pattern one, national or regional education agencies take direct responsibility for all aspects of a particular sector of education, including the full range of support functions. This is most common at the tertiary level (e.g., in the operation of a national or regional university system) but also occurs in some instances at the primary-secondary level. For example, Australian states administer all aspects of public primary and secondary education directly. In these cases, outlays for administrative and other support services are likely to be fully covered in national or regional expenditure statistics.

In pattern two, the service providers are local education authorities that are administratively and fiscally, if not legally, separate from general-purpose local governments. Examples include local school districts in the United States, local school boards in Canada, and local education authorities (LEAs) in the United Kingdom. Such units usually assume full or near-full responsibility for administration, building operation and maintenance, and the other support functions mentioned above. Consequently, expenditures for these functions are likely to be included in the local authorities' financial accounts, counted as education expenditures in regional and national statistical compilations, and included in the country's UOC and INES data submissions.

But in pattern three, responsibilities for education are not unified but rather divided along functional lines. An arrangement common to a number of continental European countries is that national or regional authorities take direct responsibility for teaching and teaching-related functions, including hiring and paying all teaching personnel, while municipalities or other general-purpose local governments are required to build, maintain, and operate schools and to perform other administrative and support functions. Although the budgets and financial accounts of these local governments usually do have separate education categories, there is a good chance in such cases that the full costs of education-related services will not be identified and reported as education expenditures.

Especially in smaller towns, for example, the same municipal employees as maintain the town hall and tend the municipal park are likely to maintain the local schools and tend the school grounds. Their salaries may be included in a general municipal public works budget, rather than allocated to education and other specific services. The smaller the locality, the greater the likelihood that education and noneducation support functions will be intermingled, and education expenditures will be understated.

Much the same applies to expenditures for administrative functions. In cases where general-purpose local governments are responsible for multiple public functions, education among them, administrative services are likely to be pooled. The offices that handle personnel administration, financial accounting, procurement, legal affairs, and administrative data processing for the noneducation functions may provide the same services for the local schools. The "education share" of expenditures for these overhead activities may go unrecorded and unmeasured, appearing only under a "general administration" heading in the municipal accounts.

As a general rule, therefore, countries that have assigned the full range of education-related functions to either national or regional education authorities or separate, self-contained local education authorities are likely to report expenditures for school operation and maintenance, administration, and other support functions more comprehensively than countries that have assigned important support functions to general-purpose governments. Other things being equal, the education expenditures of the latter countries will be understated relative to those of the former.

A separate problem affecting mainly expenditures for administration is that administrative costs incurred at the national and regional levels may not be captured fully in national education finance statistics. Frequently, only the administrative expenditures of education ministries are taken into account; the education-related administrative outlays of other ministries are excluded. Examples of omitted items include the administrative expenses incurred by health ministries in connection with programs of education for the health professions, expenses incurred by the ministries (usually of labor, employment, or economic affairs) charged with oversight of apprenticeship and other labor training programs, and the share of the administrative costs of general public buildings agencies attributable to construction and operation of school buildings.

Findings Concerning Individual Countries

The following brief country-by-country comments focus on (1) the assignment of responsibility for support functions and the consequences for coverage of the corresponding expenditures, (2) inclusion or exclusion of national and regional-level administrative expenses, and (3) any aspects of the country's definition of educational support services that affect the scope of education statistics.

Australia. State education departments directly administer public primary and secondary schools in Australia. The amounts spent by these departments for administration, school operation and maintenance, and other support functions are included in national expenditure statistics and the INES submissions. Expenditures of the federal education agency, the Department of Employment, Education and Training (DEET), are also represented in both national and international statistics.

Austria. Austria is one of the countries that divides responsibilities for education by function. The federal government (Bund) and the Länder are responsible for funding instruction and other core functions, but general-purpose local authorities are responsible for providing, operating, and maintaining school buildings and performing certain other administrative and support functions. Although local financial accounts include education categories, it is believed that the reporting of expenditures for the administrative and support functions is incomplete. Some outlays are reported under noneducation budget headings and consequently omitted from national education spending figures. At the federal level, the full cost of operating the Ministry of Education and the Arts (BMUK) is included in education expenditures, but some education-related expenditures of other national ministries have been omitted from education expenditures. Similar omissions may also occur at the Land level.

Canada. Local school boards are responsible for providing the full range of educational services, including local administration, operation and maintenance of schools, and other support functions. All expenditures of these specialized education authorities, including outlays for support functions, are included in the Canadian statistics. Canada's statistics also include the administrative expenditures of provincial boards of education, local school boards, and private schools, as well as the federal government's very small administrative outlays.

France. France belongs to the group of European countries that divides financial responsibilities by function. The central government pays for teaching and related functions directly, but local authorities are required to build, operate, and maintain the schools. The statistical coverage of the local expenditures varies by size of locality. Larger jurisdictions, which prepare more detailed budgets and financial reports, are more likely to differentiate education support costs from other municipal overhead. France's statisticians have attempted to correct for the less adequate reporting of smaller localities by estimating their education expenditures. Nevertheless it is believed that local outlays for administration, buildings, etc. are underreported, but to an unknown degree.

Germany. The Länder have primary responsibility for teaching and related functions, but local authorities are responsible for providing, operating, and maintaining school buildings and for an array of administrative and support services. Although local budgets and financial accounts do have education categories, it appears that the costs of some support functions are not recorded, or are recorded incompletely, as education expenditures. The omitted portions appear instead in noneducation overhead categories. Among the omitted items are expenditures for maintenance and transportation services provided by noneducational departments of local governments (e.g., municipal public works departments); insurance for students; and outlays for such administrative services as payroll, budget, and financial management. Expenditures for the administration of national and Land education ministries are included in Germany's national statistics, but education-related expenditures of other ministries may be omitted.

Netherlands. The national education ministry expends funds directly for the core instruction-related functions (including salaries of teaching personnel) in the Netherlands, but municipal governments are responsible for some administrative functions and for the operation and maintenance of school buildings. As in several countries already mentioned, it is believed that not all education-related outlays are identified as such in local accounts; some are reported instead in general administrative or overhead categories. A special feature of the Dutch system is a "support structure," maintained by the central government, that provides a variety of support services for both public and private schools. Expenditures for the support structure, which are captured in the Dutch education statistics, may include cost categories missing from the statistics of other countries that divide responsibilities along functional lines.

Spain. Either the Ministry of Education and Science (MEC) or the regional authorities (autonomous communities) are responsible for expending funds for the core educational functions (depending on whether or not the autonomous community in question is one that possesses "full competency" in education). The expenditures of the national and regional education ministries are included in expenditure statistics, but education-related administrative expenses of other ministries are not reported. Local authorities (*ayuntamientos*) are not responsible for administering schools but do provide for the operation and maintenance of school buildings. Until 1990, the localities accounted for these operation and maintenance expenditures separately from other local expenditures, but the separate accounting did not occur in 1990, 1991, and 1992. This made it necessary for Spain to estimate such outlays for EAG2 and EAG3. The collection of separate data on local education expenditures was expected to resume, which should eliminate the need for such estimates in the future.

Sweden. General-purpose local governments (communes) are responsible for a broad range of public services, including most forms of education below the tertiary level. Education expenditures are budgeted separately and, in theory, should be so identified in the communes' financial accounts. However, it is believed that some costs of administration and school operation and maintenance have not been specifically identified as education expenditures but instead have been included in general public works or general administration categories. Therefore, administrative and support expenditures are probably understated, but to an unknown degree.

United Kingdom. Although the local education authorities (LEAs) responsible for providing educational services in the United Kingdom are subordinate to general-purpose local authorities, they have their own budgets and financial accounts. These cover essentially the full range of building-related and other administrative and support functions. Likewise, the expenditures of schools that have opted out of their LEAs (grant-maintained schools) cover the full costs of support services, even though some of these services may be procured from LEAs or outside suppliers. The administrative outlays of the national Department for Education and the education offices of Wales, Scotland, and Northern Ireland are included in expenditure statistics, but education-related outlays of other central government departments are omitted.

United States. Fiscally autonomous local education agencies (LEAs) in the United States provide and pay for almost the full range of educational functions and services, including local administration, operation and maintenance of buildings, and the other previously mentioned support services. The expenditures reported by LEAs to states, and then by states to the U.S. Department of Education, include outlays for all these functions. Because the statistics on spending for public pre-K to 12 education compiled by the U.S. Department of Education normally cover only the outlays of local school districts, the administrative and other expenses of federal and state agencies (only a small percentage of total spending) normally are not included.[3] The United States did, however, include expenditures of the U.S. Department of Education and estimates of state education agencies' expenditures in its EAG2 data submission. Most education-related administrative expenditures of other state and federal agencies were omitted.

General Findings and Implications for Comparability

Five of the ten countries--Austria, France, Germany, the Netherlands, and Spain--divide education finance responsibilities by function. In each of the five, central or regional authorities hire and pay teachers and other pedagogical and professional staff, but local authorities provide, operate, and maintain buildings and often perform other administrative and

BEST COPY AVAILABLE

support functions. Experts from these countries acknowledge that spending for educational support functions is reported incompletely, not because expenditures "disappear" but because they are placed under noneducation headings in local financial accounts. In a sixth country, Sweden, responsibility for the full range of educational functions is exercised by local communes, but the same problem exists: Expenditures for some local administrative and support activities related to education show up in noneducation accounts. Unfortunately, we have no way to quantify the resulting degree of underreporting of spending for support functions. Even the statisticians of the countries concerned would have to conduct special studies to develop estimates. The building-related and other support activities in question could easily account fo over 30 percent of current spending for education, of which only a minor fraction--perhaps, as a rough guess, 2 to 5 percent of current spending--might be omitted from some countries' reported education outlays.

As to the remaining countries, Canada, the United Kingdom, and the United States assign responsibilities for both core instructional functions and support functions to essentially self-contained local education agencies, while Australia consolidates most responsibilities at the state level. Consequently, underreporting of support costs is not a problem for these countries. The net result, therefore, is that the amount spent for education by each country in the former group of six is likely to be understated, other things being equal, relative to the spending of countries in the latter group of four.

The principal cause of the foregoing comparability problem is structural, in that the problem arises out of the role played by general-purpose local governments in the education systems of certain countries. However, statistical practice is also a contributing factor. The fact that certain support functions are performed by general-purpose local authorities does not automatically imply that some support costs must be omitted from education expenditures.

Whether that occurs depends on how national statistical agencies require localities to record and report their expenditures. The more strongly the accounting system requires agencies to assign support costs to specific functions rather than to general overhead accounts, the more comprehensively education costs are likely to be reported. Alternatively, where it is not practical for local authorities to distribute all their administrative and other support expenses by function, national statisticians have the option of estimating the education share for purposes of international reporting. To our knowledge, only France, among the countries examined, now produces such estimates.[4]

Finally, all countries examined except the United States routinely include the administrative outlays of national and regional education authorities in their national education statistics, and hence in their INES submissions; but although the United States does not customarily include these items in its internal statistics, it has included estimates in its post-EAG2 INES submissions. Most countries exclude some or all of the education-related administrative expenditures of national and regional noneducation agencies responsible for particular education programs or functions. However, because such administrative expenditures usually account for only a minuscule fraction of total education spending, the omissions are of little consequence.

Changes to Date and Options for Further Improvement

There is relatively little that the international agencies can do to resolve the kinds of comparability problems discussed here beyond reaffirming that administrative and support costs should be reported comprehensively, even when doing so requires departures from national accounting conventions. Although there was never real doubt that the full costs of the functions in question should be included regardless of the type of agency incurring them, that point has now been reaffirmed strongly in the guidelines for the new UOE data collection instrument. For example, the UOE instructions (OECD, 1995b) state that

> [I]f a municipal department of public works spends money to maintain school buildings, these expenditures should be counted as part of education spending, even if they are not normally found in the education category of the municipal budget,

and

> Agencies of general-purpose units of government (provinces, municipalities, etc.) should be considered educational service providers to the extent that they provide services for education. For example, if the general administrative offices of a municipality provide financial management services and personnel management services for local schools, their expenditures for such purposes should be included in the education expenditures of public institutions.

Perhaps the point still requires further reinforcement. It might be useful to state explicitly that the education-related administrative and overhead costs of central and regional noneducational, as well as educational, agencies should be included in education expenditures, even if allocation or estimation procedures are needed to accomplish this.

Otherwise, the options available to the international data collectors are indirect. In addition to exhorting national data providers to report administrative and other support costs comprehensively, OECD might usefully provide technical guidance and, perhaps, country-specific technical assistance. For instance, it might outline model procedures for allocating appropriate proportions of general municipal public works and administrative costs to education, or even help to work out specific allocation methods for individual countries. Ultimately, however, the alleviation of this genre of comparability problems will depend on the willingness of national data providers to collect, estimate, and report expenses for support functions, even where such expenses fall outside the traditional scope of the country's education finance statistics.

Expenditures for Ancillary Services

The problems concerning ancillary services, though similar in some respects to those concerning administrative and support functions, are more complex, affect more levels of education (tertiary as well as pre-tertiary), and may involve (in the aggregate) larger deviations from comparability. The main categories of ancillary services considered in this section are student transportation, health and psychological services, food services (for students below the tertiary level), and room and board for tertiary students.

The general nature and the sources of comparability problems associated with expenditures for ancillary services can be summarized as follows:

- First, countries differ in whether, or to what degree, they make each type of ancillary service available to students. Thus, the question arises, for example, of how to compare total education spending between a country that expends funds to provide school lunches and a country that leaves it to families to provide lunches themselves.
- Second, ancillary services are provided by a variety of public and private organizations. A given service may be provided by the education authorities in some countries, by public noneducation agencies in others, and by private contractors or nonprofit organizations in still others. These institutional differences can translate into comparability problems in cases where the statistical coverage of some types of providers is incomplete.
- Third, different countries finance ancillary services with different combinations of direct public expenditures, public subsidies, and fees paid by students or their families. The mode of financing affects comparisons when, as is often the case, private components of spending are inadequately reported.
- Fourth, the treatment of spending for ancillary services varies among national statistical systems. Some countries cover the total costs of these services, regardless of how the services are financed; others cover only the net costs to the public sector (i.e., excluding the portion covered by fees); and still others omit expenditures for certain services entirely.
- Fifth, the degree to which, and the manner in which, expenditures for ancillary services are reflected in international data submissions also varies by country, and not always in the same way as in the countries' internal statistics. For

> example, a country with complete information on, say, expenditures for university dormitories and dining halls may choose, for reasons of its own, to present only expenditures net of fees in its international statistics.

Each of these problems is brought out more concretely in the following discussions of particular ancillary services.

Expenditures for Student Transportation

Countries differ in whether, how, and to what extent they provide transportation to and from school for preprimary, primary, and secondary students and in how (or whether) they account for transportation expenditures in their national and international education statistics. Depending on the country, student transportation may be provided by the education authorities, by other public agencies, by regular public transportation systems, by the students' families, or by various combinations thereof. Student transportation is fully government-funded in some instances; partly government-subsidized in others, with a portion of the cost covered by fees; and unsubsidized in still others. National education finance statistics sometimes reflect the full cost of student transportation, sometimes only the net cost to the government (i.e., net of fees), and sometimes none of the cost. Each country's approach is summarized below:

Australia. State education departments in Australia generally provide transportation for primary and secondary students enrolled in public schools. The net state expenditures for these transportation services are reported in both Australia's national statistics and its INES submissions. However, three components of expenditure for student transportation are not taken into account in either the national or international statistics: (1) expenditures by public transportation agencies, which provide transportation for some students in some states, (2) the portion of transportation expenses covered by student fees, and (3) expenditures by private schools or families for transportation of children attending private schools.

Austria. A ministry separate from the education ministry, known as the Federal Ministry of Environment, Youth, and Family Affairs (BMUJF), is responsible for funding transportation of primary and secondary students. The ministry's expenditures include both payments for free public transportation and payments to private contractors who transport students (especially in rural areas) to and from school. These expenditures are included both in Austria's national education statistics and its INES submissions.

Canada. In most Canadian provinces, local public school boards operate transportation systems (i.e., school buses) for primary and secondary students; in some provinces the provincial government directly funds transportation costs. In both cases, the cost of student transportation is included in national education statistics and in Canada's INES submissions. Students generally are not charged transportation fees, so gross expenditures and public expenditures for transportation are essentially the same. Expenditures for transportation by private schools also are included in Canada's national and international statistics.

France. Transportation for preprimary through upper-secondary students is partially publicly funded, and the public expenditures are included both in France's education statistics and its INES submission. The remainder of the cost is covered by fees paid by households, which also are reported in the education accounts and the INES data. However, the education finance statistics take no account of subsidies provided by the French National Railways and other public transportation systems in the form of reduced fares for students.

Germany. General-purpose local governments have the major responsibility for transporting primary and secondary students to school in Germany. In some cases, transportation is handled by a local education department, in other cases by a local transportation agency. Expenditures for transportation are more likely to be included in education statistics in the former situation than the latter. Germany also provides implicit public funding for student transportation in the form of reduced student fares on local trains and buses, but this form of subsidy is not reflected in the education expenditure statistics.

Netherlands. Primary and secondary schools in the Netherlands generally do not provide transportation services to students (except in special cases, such as transportation of handicapped children). Consequently, only very small amounts of expenditure for transportation are included in national education statistics and the INES data. However, students (including tertiary students) qualify for free travel on public transportation systems. This implicit subsidy for student transportation is not reflected in education expenditures.

Spain. At the compulsory level, transportation in rural areas is generally provided by private companies. Payments to these companies by the national or regional educational authorities are reflected in Spain's national and international expenditure statistics. Schools in urban areas are usually within walking distance, so transportation services are not required. At the post-compulsory level, transportation is paid for by families. Private expenditures for transportation are not included in Spain's national education statistics or its INES data.

Sweden. Student transportation generally is funded by the local authorities in Sweden, but the form of provision varies. In urban areas, it is likely to consist of tickets good for free public transportation. In rural areas, the local authority is likely to provide bus transportation, or even taxi service where necessary. Much of the cost, especially for free public transportation, is not included in statistics on education spending.

United Kingdom. Local education authorities in the United Kingdom generally provide transportation for primary and secondary students to and from school. Public expenditures for transportation are generally included in national expenditure statistics and in data reported to INES. Private expenditures (fees) for transportation have been netted out and excluded from the INES data.

United States. Many local public school districts operate their own student transportation (school bus) systems. In addition, some transportation systems are operated by states. Gross expenditures for student transportation appear in school district financial accounts and are reflected in state and federal finance statistics and in the U.S. data submissions to international agencies. Fees paid for student transportation (imposed in some places but not others) are treated as state or local education revenue and reported as funds from private sources in the INES submissions.

Summary. The aspect of student transportation that seems to affect expenditure statistics most strongly is the mode of service provision. Some countries--the United States, Canada, Australia, the United Kingdom, and Spain--rely heavily on student transportation services organized by the education authorities. Other countries--Austria, France, Germany, the Netherlands, and Sweden--rely mainly on regular means of local public transportation, for which students receive free or subsidized fares. The countries that provide transportation services directly generally include the full costs in education expenditures, whereas the countries that rely on subsidized public transport rarely count the subsidies as education expenditures (Austria being a notable exception). The result is to understate the student transportation expenditures, and hence the total education expenditures, of the countries in the latter group.

Of the countries that finance transportation partly with public funds and partly with fees paid by students, some report gross expenditures, while others report only the net cost to education agencies or institutions, excluding the portion covered by fees. France and the United States take the former approach; Australia and the United Kingdom take the latter.

BEST COPY AVAILABLE

The result, of course, is to understate the expenditures of the countries that report only the public subsidies.

Finally, a comparability problem of a more fundamental kind deserves mention. Even if all countries reported all types of explicit spending for student transportation comprehensively and consistently, the resulting expenditure figures would still reflect the varying degrees to which the countries provide organized student transportation services, as opposed to leaving it to individual families to transport their children to and from school. The issue of what, if anything, to do about the unmeasured, implicit costs of family-provided services requires further attention, not only with respect to transportation but also in connection with student meals, housing, and other ancillary services. We return to it later in this section.

Health and Psychological Services

Health and psychological services for students are provided by the education authorities in some countries and by noneducation agencies of general-purpose governments in others. If the former, the costs of such services are likely to be included in education expenditures; if the latter, the costs may or may not be included, depending not only on national statistical and accounting practices but also on national doctrines concerning the nature of, and the responsibility for, social services in general. In the area of health and psychological services, the doctrinal aspect takes on special importance. Some countries think of health and psychological services for students, even if provided in the school setting, less as ancillary education services than as part of the array of social services available to the citizenry as a whole. Other countries, especially those with self-contained local education agencies, tend to treat school-based health and psychological services for children as elements of the education program. Obviously, countries that consider such services "noneducational" will be likely to report less spending for education, other things being equal, than countries of the opposite persuasion.

The different national approaches to student health and psychological services can be summarized as follows:

Australia. Most primary and secondary schools in Australia do not maintain a staff of nurses, doctors, or school psychologists. These services are provided through other agencies of national and local government. Australia therefore does not include expenditures for student health and psychological services in its national or international education statistics.

Austria. The same general-purpose local governments as operate and maintain school buildings also are responsible for providing health and psychological services for students. However, Austria classifies such services (and even, incidentally, the services of school attendance officers) as noneducational social services and consequently does not include their costs in education spending.

Canada. Most Canadian local public school boards, as well as private schools, provide school nurses to attend to students' minor health needs and counselors to help students with school-related issues. The costs of these services are included in the school boards' financial accounts and in Canada's national and international education expenditure statistics.

France. Schools in France provide only a limited number of preventive health services; expenditures for these services are included in France's education expenditures. Most health and psychological services for students (and for the general population) are funded through the general national social security system. Expenditures for these services do not appear in France's education accounts or international data submissions.

Germany. General-purpose local governments in Germany are responsible for providing health, psychological, and social services to all segments of the population, including primary and secondary school students. Expenditures for these services are generally reported under noneducational headings of local government budgets and, as a result, do not appear in Germany's national education statistics or INES submissions.

Netherlands. Primary and secondary schools in the Netherlands generally do not provide health, counseling, and psychological services to students. These services are usually provided by municipalities and other general-purpose local governments. The Netherlands does not include these expenditures either in its national education statistics or its INES data.

Spain. Neither the national nor the regional education authorities in Spain provide school health services to students in public primary and secondary schools. These services are provided by other national or regional ministries, and the costs are not reflected in education finance statistics. Health services for students in private schools and universities are covered by insurance, financed through a combination of student fees and public subsidies. Schools do provide counseling and psychological services for students. The costs of such services are included in the education budgets of national and regional authorities and reflected in Spain's data submissions to INES.

Sweden. The general-purpose local authorities responsible for providing educational services also provide health, psychological, and social services for students and other local residents. However, the latter services are not considered parts of education. Expenditures for them appear under noneducation headings in local financial accounts and are not included in national or international education expenditure statistics.

United Kingdom. Local education authorities provide a variety of psychological and social welfare services to primary and secondary students. The costs of these services are reflected in national education expenditure statistics and international data submissions.

However, school health services fall under the jurisdiction of area health authorities, and the costs of health care are reported as health rather than education expenditures.

United States. Local school districts in the United States generally employ school nurses, psychologists, counselors, and other specialized staff to provide education-related health and psychological services.[5] Expenditures for these services are reported under the heading "student support services" in school district financial accounts and are included in national and international education expenditure statistics.

Summary. Most of the countries examined do not classify health and psychological services for students as educational services, even when the services are provided at school. Consequently, expenditures for these services are not counted as part of education spending. In Austria, Germany, the Netherlands, and Sweden, such expenditures appear under noneducation headings in the accounts of general-purpose local governments (the same local governments as are responsible for administrative and support functions). In Australia, most such expenditures are reported as noneducation outlays of states, and in France they are reported as outlays of the national social security system. Spain and the United Kingdom are mixed cases: Some expenditures for psychological services and counseling are included in education spending, but expenditures for student health services are not. Only the United States and Canada generally count expenditures for both health and psychological services as part of the cost of education. International comparisons of total education expenditures are correspondingly affected.

Food Services (Education Below the Tertiary Level)

For both structural reasons and reasons of custom, the education systems of different countries are involved to different degrees in providing meals to students. A significant structural factor is hours of schooling: In Germany and Austria, children attend primary schools for only four or five hours per day, making it unnecessary to provide for school lunches. A factor that can be attributed to custom is the propensity to carry lunches from home. For whatever reason, very different percentages of students (sometimes near-zero percentages) are served meals in different countries, and correspondingly different expenditures for food services show up in education expenditure statistics.

An additional consideration is that countries report food service expenditures in different ways. In most instances that do provide meals at school, some of the cost is paid by students or families, and some is covered by public subsidies. Some countries include the total cost of meals in their expenditure figures (reporting payments received as income from private sources), while others report only net public expenditures (i.e., the public subsidy component). Obviously, the two methods do not yield comparable figures.

The treatment of food service expenditures by the individual countries can be summarized as follows: Four of the ten countries examined--Austria, Germany, the Netherlands, and Australia--generally do not provide meals to students. Their education expenditure figures include almost no food service costs. The remaining countries do provide meals (mainly lunches) and operate food service facilities. In France, meals are highly subsidized at the primary level but only slightly subsidized at the secondary level. Although only the net public expenditures show up in public-sector accounts, France has been able, by drawing on household survey data, to include the estimated total cost of meals in its international data submissions. In Spain, school meals generally are provided by private contractors. Public payments to these contractors appear in education budgets and are reflected in the INES submissions. In Sweden also, outlay for school meals is a standard budget item, reflected in expenditure figures. Both Canadian school boards and U.S. local school districts include gross expenditures for food services in their education expenditure figures, which subsequently are reflected in national and international statistics. Student payments for meals are counted as education funds from private sources. Finally, local education authorities in the United Kingdom also include gross expenditures for meals and milk in their expenditure accounts, but the UK's national statistics and INES submissions include only net government expenditures for these items (i.e., exclusive of student fees).

In sum, two aspects of the provision and financing of food services affect the international comparability of expenditure statistics. One is that some countries' expenditure figures include gross outlays for food service, while others' include only the net outlays (subsidies) of the public sector. This discrepancy results in some understatement of the latter countries' total education spending. The more fundamental problem, however, is that some countries provide meals to students but other countries do not. This difference in the breadth of services deemed "educational" would detract from the validity of expenditure comparisons even if all countries' statistics were perfect. The only solution to the latter problem may be to limit the scope of expenditure comparisons, perhaps by excluding such items as food service outlays from the spending figures of all countries. We return to this option below.

Housing and Meals for Tertiary Students

Each country has its own system of providing and paying for room, board, and other sustenance for tertiary students. In some countries, these needs are addressed partly through the provision of ancillary services, either by the universities and other tertiary institutions themselves or by separate organizations affiliated with or attached to them. The main such services are housing and meals--that is, the operation of residence halls (dormitories) and dining facilities (canteens). Other ancillary services frequently offered at the tertiary level include student transportation, health care, recreational and cultural activities, and the services of university book stores and other commercial establishments.[6] This discussion deals only with the housing and meals ("room and board"), as it has not been feasible to investigate the other services in any detail.

The comparability issues associated with spending for housing and meals for tertiary students are similar, in principle, to the already-discussed issues concerning ancillary services at the primary and secondary levels; however, the amounts involved are considerably larger because many tertiary students must reside at or near their schools. The services in question are provided and financed differently in each country. Because the statistical coverage of housing and food service expenditures often depends on who pays and in what manner, such expenditures are taken into account to different degrees in different countries' expenditure statistics. The following are brief summaries of the treatment of these expenditures by the countries examined in this study.

Australia. In the university sector, student residences and canteens usually are operated by independent organizations, legally separate from, but financially linked to, the universities themselves. In some instances, the universities subsidize these independent operations; in others, they receive net revenues from the operations. In either case, only the net expenditure (subsidy) or the net revenue is reflected in the university's financial accounts, and hence in national statistics on tertiary expenditures. However, some universities operate student residences and canteens directly, in which cases the total (gross) expenditures of these operations are reported as university expenditures for "student services." As a result, Australia's tertiary expenditure data for EAG2 included a mix of some institutions' subsidies to independent operations and other institutions' direct expenditures for ancillary services.

Austria. University dormitories and dining halls are operated as private nonprofit institutions in Austria. The federal Ministry of Science and Research (BMWF) provides subsidies for construction of both types of facilities and for the operating costs of dining halls;

the Länder also provide subsidies for the operation of these facilities. Austria includes the public subsidies in both its national education expenditure statistics and its INES data. However, student fees, which cover the bulk of the cost of housing and food services, are not reflected in the expenditure figures.

Canada. Canadian colleges and universities generally provide residence and dining halls for students who reside on campus. Expenditures for these services are reported on a net basis; that is, net subsidies for residential and food services (expenditures in excess of student fees) are reported as institutional expenditures and reflected accordingly in Canada's national expenditure statistics and INES submissions.

France. French universities provide housing for a small minority of students (about 15 percent) and food services (cafeterias) for a larger number. Net government expenditures for these facilities (outlays less student fees) are included both in France's education statistics and its INES data. In addition, students receive public subsidies through the French social security system for housing rented on the private market, but these may be more appropriately counted as student financial aid (see Chapter 7) than as expenditures for ancillary services.

Germany. German universities generally do not provide residence or dining facilities for university students; students are expected either to live at home or to arrange their own accommodations. Consequently, neither Germany's internal education expenditure statistics nor its INES submissions include expenditures for student meals and housing. However, Germany does give public subsidies to student cooperative associations (*Studentenwerk*), which provide reduced-price room and board to university students. Germany has interpreted these subsidies as a form of financial aid for student living expenses (see Chapter 7) rather than as spending for ancillary services, and reported accordingly in its INES submissions.

Netherlands. Institutions of tertiary education in the Netherlands generally do not provide residence or dining facilities for students. Consequently, expenditures for these types of ancillary services do not appear in the Netherlands education statistics.

Spain. For the most part, Spanish universities do not provide dormitories or dining facilities for university students; most students either live at home or arrange their own accommodations. Consequently, Spain's statistics on tertiary expenditures have included only minor expenditures for student housing and meals. It appears that such expenditures have been reported on a gross basis but that data on student fees, which would be needed to estimate net expenditures, are also available.

Sweden. Although we lack adequate information on this topic for Sweden, our impression is that Sweden is another of the countries that generally does not provide residential or food service facilities for university students. Expenditures for such services do not appear in the Swedish statistics.

United Kingdom. Universities and other tertiary institutions in the United Kingdom operate residence halls and food service enterprises for resident students. Consistent with its general practice of reporting only the net expenditures of public education authorities, the UK has included only net expenditures for these ancillary services (total expenditures less fees paid by students) in its national education expenditure statistics and INES submissions.

United States. Public and private colleges and universities in the United States generally provide dormitories and food services for resident students. The gross expenditures of these operations are reported in the U.S. higher education statistics as "expenditures of auxiliary enterprises"; the fees paid by students are reported as revenues of auxiliary enterprises. For purposes of international reporting, however, the United States has excluded all expenditures of such enterprises. Therefore, neither the gross nor the net costs of the ancillary services in question were reflected in the U.S. data submissions for EAG2.

Summary. The most common statistical practice among the countries that expend substantial amounts for ancillary services (room and board) for tertiary students is to count only the net institutional outlays for such services--that is, gross outlays less student fees--as spending for tertiary education. This is the approach followed by Austria, Canada, France, and the United Kingdom. Countries that deviate from this approach include Australia, which has reported an amalgam of gross and net expenditures; Spain, which has reported gross expenditures (but only minor amounts) in the past; and the United States, which excluded all expenditures for "auxiliary enterprises" from its figures. The tertiary institutions of the remaining countries, Germany, the Netherlands, and Sweden, generally do not offer the types of housing and food services in question, so no such expenditures enter into these countries' education statistics.

General Implications of Problems Concerning Ancillary Services

The expenditure comparability problems related to spending for ancillary services are of two types: First, various inconsistencies in statistical coverage and measurement methods cause expenditures for ancillary services to be reported more comprehensively by some countries than by others. Second, the fact that some countries provide a wider range of ancillary services than others raises a broader question about the validity of international comparisons in which expenditures for ancillary services are included.

The main statistical inconsistencies brought out in the foregoing discussion can be summarized as follows:

- The education expenditure statistics of some countries include outlays for ancillary services (specifically, health, psychological, and other social services) that are considered noneducational, and hence excluded from education statistics, by other countries.

- Some expenditures for ancillary services (student transportation and health and psychological services) go unreported or underreported in cases where the services are provided by general-purpose governments rather than education authorities.
- Some countries report gross expenditures for certain services (transportation, food services, tertiary room and board), whereas others report only net expenditures--that is, gross expenditures less the fees paid by students or their families.

Although these inconsistencies, taken one at a time, introduce only small errors into international expenditure comparisons--discrepancies amounting to no more than a few percent of total spending for the level(s) of education in question--we can expect their combined effects to be larger. The reason is that the same countries as omit or underreport outlays for one ancillary service are likely to do the same for others. Moreover, the same countries as omit the items of ancillary services expenditures discussed in this section are also likely to omit some of the administrative and support items discussed in the preceding section. For example, Germany's statistics on spending for primary and secondary education omit transportation subsidies provided in the form of free or reduced fares for students, exclude outlays for health and psychological services (which appear in noneducation accounts), and leave out unknown amounts of education-related administrative and support costs incurred by general-purpose local governments. The whole set of omissions could easily amount, in the aggregate, to 10 percent or more of total spending for primary-secondary education. Consequently, Germany's expenditures could be understated by that amount (other things being equal) relative to those of countries that normally include outlays for the full array of support and ancillary services, such as the United States and Canada. Clearly, the effects of disparate statistical treatment of multiple ancillary and support services, looked at in combination, cannot be dismissed as insignificant.

But even if all the aforementioned statistical inconsistencies were eliminated, the inclusion of outlays for ancillary services in aggregate education spending would distort international expenditure comparisons. The reason is that expenditures for ancillary services, even when reported comprehensively, generally do not represent the total resources that a country devotes to the ancillary activities in question. Instead, they reflect the degree to which the country has organized ancillary services and made them "official" (be they transportation of students or provision of school lunches), as opposed to leaving them to individual students and their families. In other words, international differences in expenditures for ancillary services reflect not only differences in the amounts of services provided but also differences in the institutional arrangements for providing them.

For concreteness, consider student transportation. In every country, students who do not live within walking distance must travel to and from school. In some cases, transportation is organized by the education authorities, and the costs are recorded as education expenditures. In other cases, the services are provided or paid for by public noneducation agencies and the costs may appear in noneducation accounts, but the latter is a correctable accounting problem. But in the cases that concern us here, students or families provide and pay for transportation themselves, and the costs appear in no one's expenditure figures. Yet if student transportation is to be considered an education-related function and the cost of student transportation is to be included in comparisons of education spending, the amount so included should not depend--in principle--on whether transportation is provided by individual households, by the education system, or by other public authorities.

BEST COPY AVAILABLE

As another example, consider lodging and meals for tertiary students. All tertiary students in all countries need to be housed and fed. Different countries satisfy these needs through different mixes of services provided by educational institutions, services purchased from private vendors by students, and services produced in the students' own households. No country's expenditure statistics reflect the costs of the latter two forms of room and board, except insofar as they are covered by public subsidies. Consequently, the effect of including in a comparisons of education spending such costs of housing and meal services as do appear in normal expenditure accounts would be to exaggerate the outlays of countries that rely heavily on institutionally provided or publicly subsidized services, as compared with those of countries that rely more on private-market and household provision.

In principle, there are two ways to deal with these threats to validity. One option is to include all costs incurred for the ancillary services in question, regardless of whether they are incurred by educational institutions and public agencies or by individual students and their families. The other is to exclude all costs of room, board, and other ancillary services from comparisons of education spending. The first option is not feasible; it would require the collection of data on all spending by, or on behalf of, students for housing, meals, and other elements of personal sustenance. Even if feasible, it would not be acceptable on conceptual grounds. It would mean counting more or less the total consumption expenditures of tertiary students as part of the cost of tertiary education, without regard to the costs the same individuals would have incurred anyway, even if they were not engaged in tertiary studies. The second option would limit the scope of international expenditure comparisons to spending for basic educational services. Its conceptual shortcoming is that it would exclude even the truly incremental costs of housing, meals, etc. associated with being a student (and, of course, it would exclude the corresponding public subsidies). At the practical level, the key to implementing the latter option is being able to separate expenditures for ancillary services from the rest of education spending, a capability that the INES project has sought to develop, but thus far unsuccessfully, as we explain further below.

Changes to Date and Options for Further Improvement

The inconsistent statistical coverage of expenditures for ancillary services can be attributed in part to structural factors (e.g., assignment of responsibility to noneducation agencies), in part to national statistical practices (e.g., reporting of only expenditures net of student fees), and in part to gaps and ambiguities in the pertinent INES instructions. Clarifying the international definitions and guidelines is a prerequisite for addressing the country-specific causes of noncomparability. Some important changes have been made since EAG2, but more remains to be done.

Both the 1991 INES *Handbook* and the INES definitions in effect for EAG2 indicate, or at least imply, that expenditures for all the ancillary services discussed above should be taken into account in expenditure statistics, but neither offers guidance as to how such expenditures should be measured or precisely what should be included. Among the items specifically listed for inclusion are expenditures for "medical provisions at schools," "vocational and psychological guidance," "school canteens, boarding institutions, . . . [and] transport." Also mentioned are private expenditures (fees) for "transport to school (if school-organized), meals (if school-provided), boarding fees," and "public subsidies for student dormitories and cafeterias" (OECD, 1991). Two conspicuously missing bits of information are (1) any indication as to whether gross or net expenditures for the enumerated services should be reported and (2) any statement concerning coverage of the ancillary services expenditures of noneducation agencies. Also, the importance had not yet been recognized of separating ancillary services expenditures from other expenditures, so that the former could be either included or excluded, as appropriate, depending on the comparative question being asked.

The INES data collection instrument for EAG3 introduced, and the 1995 UOE instrument retained, more explicit provisions for dealing with ancillary services outlays. Each instrument provides for separate reporting of expenditures for ancillary services, a feature that should make it possible, in theory, to compare expenditures with or without including them. The instructions stipulate that countries should report (and itemize) gross expenditures for ancillary services if possible, and then show separately the offsetting income derived from student fees. Recognizing, however, that some countries currently lack data on gross outlays for ancillary services, the instruments also allow countries to report only net expenditures where necessary, and to indicate that they have done so.

The instructions list specific types of ancillary services expenditures to be reported (including, incidentally, expenditures for services offered to the general public as well as the full range of student welfare services). Addressing the issue of expenditures by noneducational agencies, they state that,

> If an agency of national, regional, or local government pays for transportation for students or health care or psychological services within the schools, its expenditures for those purposes also should be included.

If countries were able and willing to respond as requested, the problem of inconsistent statistical coverage of ancillary services would be mostly solved, and the broader issue of validity raised earlier could be dealt with by excluding ancillary services outlays from certain international comparisons.

Unfortunately, it is not clear at this point that satisfactory responses will be forthcoming. In the EAG3 round of data collection, only a small number of countries submitted data on both gross and net expenditures for ancillary services. Many did not separate the costs of ancillary services from other types of education spending, and few seem to have expanded their data collections to embrace pertinent expenditures of noneducation agencies. Consequently, it was not feasible in EAG3 to present international comparisons of education spending exclusive of the cost of ancillary services. It is too early to say whether compliance will be greater under the UOE system.

Although the desired changes in data collection can only be effected at the individual-country level, OECD may be able to contribute in several ways. One would be to elaborate the definitions and instructions, perhaps by spelling out the appropriate treatment of each category of ancillary services. Another would be to provide specific examples of acceptable methods for estimating the costs of education-related ancillary services provided by noneducation agencies. A third would be to provide country-specific technical assistance. Finally, a step that might help to motivate better reporting in the ancillary services area would be to formulate new expenditure indicators that explicitly take the distinction between basic educational services and ancillary services into account.

Expenditures for Retirement (Pensions)

Expenditures for the nonsalary components of personnel compensation--retirement programs, health and disability insurance, unemployment compensation, and numerous other fringe benefits--account for an important fraction of the cost of education in every country. The extent, form, and generosity of these benefits; the methods of providing and financing them; and the manner of representing them in financial accounts all vary greatly from one country to another. The resulting inconsistencies in education expenditure statistics constitute one of the more serious comparability problems encountered in this study.

For expository convenience, the discussion of nonsalary compensation is divided into two parts. This section focuses on expenditures for retirement programs, or pensions--the largest and most complex element of nonsalary compensation, and the most important from the standpoint of comparability. The following section deals with other categories of fringe benefits and social insurance.

Problems in Comparing Expenditures for Pensions

Retirement expenditure constitutes one of the largest categories of education spending after salary itself. Pension payments to retired educators are often hard to quantify but are known to exceed 30 percent of the gross salary of the current education work force in some instances. In countries with contributory pension funds, it is common for the contributions of employers and employees *each* to be on the order of 8 to 12 percent of gross salary. Because these outlays are so large, the manner in which they are treated in expenditure statistics has an important bearing on the international comparability of education spending as a whole.

To appreciate the problem of comparing retirement expenditures across countries, one must first consider how educators' pensions are financed. There are two basic approaches plus combinations and variants thereof. Some countries operate funded, contributory pension plans. Usually, this means that the employer and the employee (sometimes only the employer) each contributes a specified fraction of gross salary to a pension fund. The contributions are invested and earn interest during the employee's working years. After retirement, the employee receives pension payments in amounts reflecting the accumulated assets and the earnings thereon. But other countries have unfunded ("pay as you go") pension plans, at least for civil service employees. Under an unfunded plan, there are no accumulations of assets or contributions into pension funds. Instead, pension payments to retirees are financed out of the current government budget. Some countries combine an unfunded plan for civil servants with a funded, contributory plan for non-civil service employees. Others combine a pension plan for education personnel (or perhaps for all government employees) with a general social security system that also pays retirement benefits. A further complication is that the contribution rates of some nominally funded pension plans have been set too low to cover pension obligations. The government concerned may provide subsidies to fill the gap, thereby establishing, in effect, an amalgam of a funded and a pay-as-you-go system.

The principal comparability problems arising from these diverse financial arrangements are of two kinds: problems of incomplete coverage of pension costs and problems of inconsistent measurement. The problems of incomplete coverage are straightforward and not much different from other problems of omission discussed in this report. The measurement problems are more subtle and require more sophisticated solutions.

Incomplete Coverage. Setting aside measurement issues for the moment, we can say that a country's statistical coverage of retirement expenditures is comprehensive if its expenditure figures fully reflect, in one way or another, the cost of each type of retirement plan available for each category of education personnel. Some countries have excluded one or more components of retirement spending--sometimes the dominant component--from their statistics. For instance, Austria and Spain, both of which provide pensions mainly through an unfunded civil service retirement system, have omitted all expenditures for civil service pensions from their UOC and INES submissions.

The most commonly omitted retirement expenditures are those that do not appear in national education budgets. Because employer contributions to funded systems usually do appear in education budgets, they are likely to be included in both a country's national education finance statistics and its UOC and INES data. But civil service pensions for educators usually are administered by a specialized government agency--sometimes a unit of the national finance ministry, sometimes a separate pension agency--that is responsible for pension payments to all retired civil servants. Such agencies often do not distinguish between pension payments to retired educators and to other retirees. Consequently, there is no directly observable retirement expenditure for former education personnel. The same applies to social security retirement benefits financed from general government revenue rather than employer contributions. Lacking data on these items, some countries simply leave them out of education expenditure statistics. Other countries have dealt with the same data gaps by producing estimates of omitted pension costs and incorporating them into their UOC and INES figures. Unfortunately, these estimates (sometimes referred to as "fictitious payments") are based on diverse methods and assumptions. The attendant problems of inconsistent measurement are examined below.

Various hybrid situations have arisen where there are dual or two-tier retirement systems. A country with a funded non-civil service plan and an unfunded civil service plan may include the cost of the former but not the cost of the latter in its expenditure statistics; or it may include the actual cost of the former plus an estimate of the latter. Some countries have reported contributions into funded retirement plans, but not the government subsidies needed to make up for funding shortfalls. Countries that supplement general social security retirement benefits with additional pensions for educators sometimes include the costs of the pensions but omit the social security expenditures from their figures. The latter omission is particularly likely where social security systems are financed from general revenue rather than from employer contributions.

The general effect of the gaps in coverage is obvious: Countries that omit substantial portions of retirement spending will report misleadingly low expenditures for education (in particular, for compensation of education personnel) compared with countries that take all retirement costs into account.

Inconsistent Measurement. Countries have used two fundamentally different and incompatible methods to measure expenditures for retirement. Method one is to measure the contributions flowing into retirement funds for personnel currently employed in the education system. Method two is to measure expenditures in terms of the pension payments made each year to former employees who have already retired. These may be termed the *contribution method* and the *pension payment method*, respectively. The contribution method can be applied directly only where there are funded, contributory pension plans. However, some countries without funded plans have attempted to express their retirement costs in terms of estimated, or imputed, pension contributions. In principle, any country could report retirement expenditures according to the pension payment method, but the method is more likely to be used--and is the only method that can be used directly--by a country with an unfunded, pay-as-you-go pension plan. A few countries have used both methods simultaneously, applying the pension payment method to an unfunded civil service pension plan and the contribution method to a funded plan for non-civil service employees.

Consider how the choice of measurement method affects a country's statistics on education expenditure. According to the contribution method, the amount to be added to the gross salary of education staff to reflect the cost of pensions is the employers' contribution to retirement funds. Suppose, for example, that a country finances pensions for its education personnel by a combination of employer and employee contributions into a pension fund, each amounting to 8 percent of gross salary. The 8 percent contributed by the employees (usually through payroll deductions) is already included in gross salary, but the employer contribution is extra. The combined expenditure for salaries and retirement benefits is 108 percent of gross salary. This is the amount that would appear in the national education budget of a country with a fully funded pension scheme, and the amount that such a country probably would report under "compensation of personnel" in its INES submission.

In contrast, a country following the pension payment method would report the current flow of benefits to persons already retired. This flow might amount, for example, to 30 percent of the gross salary of current education personnel. Accordingly, the country would add 30 percent to gross salary and report the result, 130 percent of the gross salary of current employees, as expenditures for personnel compensation.

In the past, the UOC and INES instructions did not specify which reporting method to use. For example, according to the INES instructions given to data providers prior to 1994,

> Pension costs should be taken into account, but only once. Provision for pensions can be made according to two different methods: Method 1: actual payments paid in the current fiscal year by employers or pension funds to pensioners, or Method 2: contributions by employer and/or employee in the current fiscal year towards pension payments in future years (OECD, 1992).[7]

Given this license, some countries have used one measurement method, and some, the other, resulting in noncomparable statistics.

When the instructions quoted above were written, it had not been recognized that the two measurement methods yield very different results. Rather, it was believed, or assumed, that the two approaches, though different in principle, would produce reasonably similar figures. The 1991 INES Handbook (OECD, 1991) offered this assessment:

> Provision for pensions can be made according to two different methods: In some countries, pension schemes are run on a pay-as-you-go basis. In other

> cases, pension schemes are organized on a funded basis (with the individual contributing to a fund that will pay for [his or her] own pension later on). Pension costs can therefore be taken into account either as pensions paid today to former employees of educational systems or as provisions, made today by employer and employee contributions for [current] employees, and which will be repaid as pensions later. While these two possibilities are not fully equivalent in terms of the numbers involved, they are close enough to warrant use of either of them. The one that most satisfactorily represents the reality of pension schemes in a given country should be chosen. . . .

The presumption of rough equivalence turns out to be wrong. We demonstrate below, with the aid of an extended numerical example, that a country using the pension payment method can appear to be spending twice as much or more on retirement as a country using the contribution method, even when the two countries provide equally generous pensions to their retirees.

Consider a highly simplified, stylized model of a fully funded national teacher retirement system with the following characteristics:

- Every teacher earns the same gross salary, S per year, during each year of teaching.
- Every teacher works for W years and then retires.
- Each year, the employer contributes a fraction r_e of each teacher's gross salary to the pension fund. In addition, a fraction r_o of each teacher's salary is deducted as an employee pension contribution. Thus, the total pension contribution per teacher per year is rS, where $r = r_e + r_o$.
- The contributions for each employee accumulate for W years at an interest rate i, reaching a total accumulated amount A at the time of retirement. (Assume that there is no inflation, so i represents the real interest rate.)
- Upon retirement, each teacher receives a pension (annuity) of P per year. This amount is based on the accumulation A, the interest rate i, and the individual's life expectancy L, which is assumed, for simplicity, to be the same for all teachers.

By applying a standard financial formula to the hypothetical pension fund outlined above, we can calculate the pension-fund accumulation for each teacher as[8]

$$A = rS\,[(1 + i)^W - 1]/i\ .$$

For example, if $W = 40$ years, $i = 2$ percent, and the employer and employee contributions are each 8 percent of gross salary (16 percent total), the accumulation per teacher would be $A = .16S[(1.02)^{40} - 1]/.02 = 9.7S$. That is, the contribution of 16 percent of gross salary per year grows (in real terms and at 2 percent compound interest) to an accumulation of 9.7 times annual gross salary by the time of retirement.

Next, using another standard financial formula, we can calculate the annual pension payment (annuity payment) required to amortize the aforesaid accumulation over the teacher's expected post-retirement life span. The calculation is[9]

$$P = Ai/[1 - (1 + i)^{-L}],$$

which yields, for the numerical values given above, $P = 9.7S(.02)/[1 - (1.02)^{-20}] = .59S$. That is, the accumulation of 9.7 times gross salary translates into an annual pension payment to each retired individual equal to 0.59 times gross salary.

Consider now how these figures would be reflected in a country's education expenditure statistics if the country used the contribution method or the pension payment method to quantify its pension costs. Assume that the number of retired teachers in the country, R, is one-half the number of currently employed teachers, T (which is consistent with the assumption that each teacher works 40 years and has a post-retirement life expectancy of 20 years). Using the contribution method, the country would report as expenditure for personnel compensation the gross salary of currently employed teachers, TS, plus the employer contribution for pensions, .08TS, resulting in a total personnel compensation figure of 1.08TS. Using the pension payment method, the same country would include in its expenditures for personnel compensation the gross salary of current teachers, TS, plus pension payments to retired teachers, RP. In our example R = 0.5T and P = 0.59S, so total spending for pensions would be 0.5 x 0.59TS, or about 0.30TS. The country's reported personnel compensation expenditures--gross salary of currently employed teachers plus pension payments to retired teachers--would amount to 1.30TS.

We see, therefore, that the same country--one with a fully funded pension system--would report 20 percent more spending for personnel compensation according to the pension payment method than according to the contribution method (the percentage difference between 130 percent and 108 percent of gross salary). Note that part of the difference is due to double counting: The 130 percent figure includes not only pension payments to retirees but also the pension contributions being made by current employees (8 percent of gross salary). But even if we subtract the latter, the adjusted figure based on the pension payment method, 122 percent rather than 130 percent of gross salary, would still exceed the amount based on the contribution method by 13 percent (the percentage difference between 122 and 108).

In practice, the countries most likely to report spending according to the pension payment method are those with unfunded rather than contributory pension plans. To see how comparability would be affected by the choice of reporting method in the case of an unfunded plan, we turn the foregoing analysis around by asking, "what contribution rate under a contributory plan would generate the same stream of pension payments as we observe under an unfunded plan?" Using the same numerical values as above, the answer is that a 16 percent contribution rate (the sum of the previously stipulated employer and employee contribution rates) would be required to generate pension payments equal to 30 percent of gross salary. Therefore, the effect of a country's decision to report actual pension payments rather than the equivalent hypothetical contribution rate would be to exaggerate spending for personnel compensation by about 12 percent (the percentage difference between 130 and 116 percent of gross salary).

Considering that expenditure for personnel compensation typically constitutes 80 percent of all education spending, we can see that the aforesaid differences in reported pension costs can translate into differences of 10 percent or more in total reported education spending. Thus, if we imagine two otherwise identical countries, one of which reports pension payments and one of which reports pension contributions, an expenditure comparison between them could be distorted by about 10 percent because of the difference in measurement methods alone. This is apart from any distortions caused by inconsistent statistical coverage of retirement expenditures.

Of course, all the figures cited above reflect specific numerical assumptions. Other assumptions would yield different results. For this reason, we have carried out similar calculations corresponding to alternative assumptions regarding interest rates, contribution rates, life expectancies, and years of work. The findings, briefly stated, are that the results are highly sensitive to the assumed interest rate and pension contribution rate but much less sensitive to the assumed number of work years and the life expectancy at retirement. We can show, however, that over a wide range of assumptions, the disparity in reported spending for personnel compensation between countries using the pension payment method and the contribution method would be in the range of 9 to 16 percent (not including any double counting of contributions and pension payments). This translates into errors of between 7 and 13 percent in an international comparison of total education spending.

The implication is that leaving it to each country to decide for itself how to measure retirement spending was a mistake. Expenditure comparisons between countries that choose different methods will not be correct. In terms of the size of the potential errors, inconsistent measurement of retirement cost is one of the more serious comparability problems unearthed by this study.

Findings Concerning Individual Countries

The following comments on individual countries cover (to the limited extent of our information) the method(s) used by each country to finance pensions for education personnel, the coverage of retirement costs in the country's education expenditure statistics, and the technique used by the country to measure or estimate retirement expenditures.

Australia. The coverage of retirement costs in Australia's expenditure statistics is uneven across levels and sectors of education. Retirement outlays have been omitted from the expenditure figures for public primary and secondary schools. (Apparently data on retirement expenditures are available for some states but not for others. They have not been reported, even for the former, pursuant to a general policy of including only items that are available for all states.) Data on retirement expenditures in the preprimary and TAFE sectors are available for some states but not for others; hence the national figures are incomplete. The data for tertiary institutions (universities) do include pension costs, as do the data for at least some private institutions. In cases where retirement expenditures are included, they are measured by the contribution method--that is, they represent employers' contributions on behalf of currently employed education personnel.

Austria. Austria has different retirement systems for teachers and other staff who are civil servants (the great majority) and those who are contract employees. The civil service plan is an unfunded, non-contributory, pay-as-you-go system. Pension payments to retired civil servants are included in the Bund and Länder budgets, but payments to retired educators are not separately identified. Consequently, all costs of civil service retirement have been omitted from Austria's education finance statistics and its UOC and INES submissions. As a

308

rough indicator of the magnitude of the omission, the Austrian Ministry of Finance estimates that the imputed retirement contribution for civil-service educators would be 25 to 30 percent of gross salary, which translates into about 10 to 15 percent of total education spending.

The pensions of contract employees are provided through the social security system, which is financed by employer and employee contributions. The employer contributions (about 10.3 percent of gross salary) are counted as personnel compensation and included in education expenditures. However, the expenditure figures exclude government subsidies that have been provided to cover funding shortfalls. Thus, even the costs of the funded non-civil service system are not represented fully in the current expenditure statistics.

Canada. Teachers and other education personnel in Canada, at all levels of education, are covered both by funded, contributory pension plans and by the Canada Pension Plan, which is a general social security-type system. Teachers have separate pension plans in most but not all provinces. Teachers in the territories are covered under a federal plan. The contributions of public employers, some paid by provincial governments and some by local school boards, are included in data assembled by the provinces and reflected in the national expenditure statistics. The contributions of private employers are reported in institutional surveys and also included in the national statistics. Employer contributions to the general social security plan as well as to the separate education pension plans are reflected in the Canadian expenditure figures.

France. Civil servants and non-civil servants (90 percent and 10 percent of total education staff, respectively) receive their pensions from different retirement systems. The non-civil servants receive pensions through the general social security system, which is financed by employer and employee contributions. The employer contributions are included in the statistics on compensation of personnel. The teachers and other educators who are civil servants receive pensions through the general civil service retirement system, which is an unfunded, pay-as-you-go system, with no employer contributions.

France has reported civil service retirement expenditures according to the pension payment method, but, lacking data, has had to rely on estimates of the share of total civil service pension payments attributable to retired educators. These estimates are said to be crude and only infrequently updated. The current estimate, apparently built into the expenditure figures for all levels of education, is that pension payments equal 31 percent of the gross salary of current civil service employees. As explained above, this is much more than would be reported by a country paying equally generous pensions under a funded, contributory pension plan.

Germany. Germany has an unfunded, pay-as-you-go pension plan for civil service employees (most teachers and administrators) and a funded, contributory plan for non-civil servants. Instead of estimating pension payments to retired civil-service educators, Germany has included in its expenditure figures "fictitious payments" representing hypothetical employer contributions. The estimation method is to assume that the employer (government) contribution on behalf of civil servants would be equal to the sum of the employer and employee contributions for non-civil servants, which now are each 12.5 percent of gross salary. In other words, Germany estimates pension costs as 25 percent of gross civil service salaries. Retirement costs for non-civil servants (most support staff and some teaching staff) are measured by current employer contributions into the funded retirement plans.

Netherlands. The Netherlands has a two-component retirement system for education personnel. One component is a social security-type system that applies to workers in general. It is financed on a pay-as-you-go basis out of employee contributions and general government revenue. The second component is a separate retirement system for education employees, financed from employer and employee contributions and earnings on accumulated investments. Employer contributions to the funded retirement system have been included in education spending. The employee contributions to the unfunded social security-type system are included, of course, in gross salary, but it appears that the portion of the system's cost financed from general revenue is not reflected in the education expenditure statistics.

Spain. Spain is another country with separate retirement systems for civil-service and non-civil service educators. The employers' retirement contributions for non-civil service employees in public schools and all employees in government-dependent private schools are included in public education budgets and education spending statistics. Also, the retirement contributions for non-civil servants at universities are contained in university budgets and included in education expenditures. All retirement expenditures for civil service employees of the public schools and public universities were omitted from Spain's EAG2 finance statistics. We understand that the national education ministry is in the process of estimating these expenditures from data on actual retirement payments to retired civil servants. If such estimates were prepared, Spain would join France in reporting civil service retirement costs according to the pension payment method.

Sweden. Retirement benefits for education personnel are provided under the general social security system, which covers all Swedish workers. The social security system is financed by "employer fees" amounting to 42 percent of gross salary, of which about 25 percent is attributable to pensions and the remainder to other types of benefits. The full 42 percent add-on to salary is reflected in Sweden's education expenditure statistics and INES submissions. The 25 percent figure cited for pension costs does not represent either contributions into a pension fund nor actual pension payments but approximates the latter more closely than the former. It is a legally determined amount that, at the time of our inquiry, exceeded the actual outflow of pension payments to retirees but not necessarily the obligations being incurred on behalf of educators currently employed.

United Kingdom. Retired education personnel in the United Kingdom receive benefits from both a general social security system (National Insurance) and separate, funded, contributory pension plans for education staff established by local authorities and other employers. The funded plans account for the greater part of pension payments. It appears that employer contributions to both National Insurance and the separate pension plans are included in the UK education expenditure statistics. However, there is some ambiguity regarding the extent of coverage of retirement costs in the expenditure figures for tertiary institutions.

United States. Teachers and other education personnel in the United States generally receive retirement benefits from funded, contributory pension plans. The plans covering the staffs of public primary and secondary schools are operated by individual states or, in a few cases, by local school systems. At the tertiary level, institutions and employees contribute to funded plans, which usually are managed by private financial institutions. In addition, education employees receive retirement benefits from the general social security system, which is funded by employer and employee contributions.

The United States does not have national data on either pension contributions for, or pension payments to, education personnel. However, local education agencies and tertiary institutions do report total expenditures for fringe benefits, a category that includes employers' contributions to both the social security system and the separate education pension plans, along with other kinds of nonsalary compensation. Thus, although pension contributions are not separately identifiable, they are included in the U.S. expenditure statistics for all levels of education and in the county's UOC and INES submissions.

General Findings and Implications for Comparability

The countries can be sorted out as follows with respect to their statistical treatment of expenditures for retirement: Four of the ten countries--Canada, the Netherlands, the United Kingdom, and the United States--finance all or most retirement benefits through funded, contributory pension plans and include the employer contributions in their education finance statistics. A fifth country, Australia, also relies on funded, contributory pension plans but had to omit much of the cost from its EAG2 statistics because of data collection problems. Four of the remaining countries--Austria, France, Germany, and Spain--operate unfunded, pay-as-you-go pension plans for civil servants and funded, contributory plans for non-civil service employees. Each of the four includes the relatively small contributions for non-civil servants in its expenditure figures, but each deals differently with the more important civil service component. Germany's statistics include "fictitious payments" (hypothetical contributions) for retirement amounting to 25 percent of the gross salaries of civil servants. France's figures include estimated pension payments to retirees, amounting to 31 percent of the gross salaries of current employees. Austria and Spain have omitted all civil service pensions, but Spain may report according to the French pension payment method in the future. Finally, Sweden, which provides retirement benefits through its general social security system, adds about 25 percent to gross salary to represent pension costs--a figure that corresponds roughly (currently with some overstatement) to pension payments to retired educators. (We know that some other countries, such as Belgium, also use the pension payment method.)

Thus there are two principal comparison problems: First, the omission of most retirement expenses from the Austrian and Spanish statistics, and a substantial portion of retirement expenses from the Australian statistics, makes the expenditure figures of these countries misleadingly low compared to those of the other countries. Second, the difference in measurement methods distorts comparisons between the countries that include employer contributions in their figures and those that include estimated pension payments. Taking the countries with fully funded contributory plans as the standard of comparison (Canada, the United Kingdom, and the United States), we can say that the expenditures of countries that have omitted their pension outlays may be understated by 10 to 15 percent, while the expenditures of countries that report pension payments rather than pension contributions may be overstated by slightly smaller percentages.

Changes to Date and Options for Further Improvement

The actions needed to address this comparability problem are reasonably clear. First, filling the larger data gaps is essential. This is something that can be done only by the individual countries that have thus far omitted major portions of retirement spending. However, the question of how the gaps should be filled--that is, what measurement or estimation method should be used--has to be addressed at the international level. We know now that the choice of measurement method makes a significant difference. For future data collections, OECD needs to deal with the problem of incompatible methods by specifying a single method to be used by all countries. But which method should be chosen?

Conceivably, either the pension contribution or the pension payment method could be used, but there are practical difficulties with both approaches. The contribution method cannot be used directly by a country with an unfunded (or only partially funded) retirement system. Such a country would have to estimate hypothetical, or imputed, contributions. Appropriate estimation methods have not been developed, or at least not standardized across countries. Presumably, they would have to involve more realistic and elaborate models of the type used in the earlier numerical example. That a substantial number of countries would have to rely on such estimates is a disadvantage of this method.

It might seem that the pension payment method could be applied directly by all countries, because every retirement system, regardless of how it is financed, eventually generates a stream of observable payments to retirees. We find, however, that each country using the pension payment method has also been obliged to rely on estimates--not to measure the flow of pension payments per se but rather to determine the education share. This is a limitation that could eventually be cured. National pension agencies could be asked to distinguish in their data between payments to retired educators and to other retired personnel. For the time being, however, it appears that countries with unfunded systems will have to rely on some form of estimation no matter which measurement method is used.

At the conceptual level, however, the choice between methods is more clear-cut. The pension payment approach has the major weakness that it reflects payments to persons no longer employed, who served students no longer in school. It is not logical to commingle these payments for past services with payments for current services, which is what would happen if pension payments to retirees were added to salaries of currently employed education staff. In contrast, the contribution method reflects costs being incurred now--that is, contributions on behalf of currently employed educators--to provide services to students currently in school. The sum of current salaries plus current contributions to pension funds yields a meaningful estimate of the total compensation of current employees. The same cannot be said of an expenditure aggregate that consists partly of pension payments to persons already retired. From an economic perspective, therefore, the contribution method (or the imputed contribution method, where necessary) is the more logical approach.

Reflecting this point of view, both the INES instructions for EAG3 and the 1995 UOE instructions contain the following statements concerning retirement expenditures:

> Retirement expenditure is defined, in principle, as the cost incurred currently, exclusive of any contribution by employees, to provide future retirement benefits for persons currently employed in education. This cost can be measured by the employers' contributions to retirement systems *plus* any imputed contribution necessary to cover a projected gap between actual contributions and future costs. (The reason for not counting employee contributions is that they are already counted in the gross salary component of total compensation.) In the case of a fully funded pension system, the current employer contribution into the pension fund is the total cost of retirement. In the case of a completely unfunded ("pay as you go") civil service retirement system, the total cost must be imputed.
>
> . . . . Note in this regard that the amount currently paid in pensions to former employees who are now retired is not the desired measure of retirement expenditure, except insofar as it is used to project retirement costs for persons who are currently employed.

Of course, it is one thing to proclaim the principle and another to translate it into operational guidelines that can be implemented consistently by different countries. Accomplishing the latter will require development of appropriate methodology, specifically including practical methods for estimating imputed contributions. Such developmental work would have to be followed by dissemination efforts and perhaps technical assistance to national data providers. The international data collection agencies, particularly OECD, would have to take the lead role in organizing these activities.

Expenditures for Other Employee Benefits

In addition to participating in retirement programs, workers in many countries are entitled to multiple types of social insurance and a variety of other fringe benefits. The most important of these is usually coverage for health care, provided either through insurance or through access to a government health care system. Other important benefits include disability insurance, unemployment compensation, life insurance, sick pay, and, in some countries, educational benefits and child care. In the aggregate, these forms of nonsalary compensation often account for a significant fraction of the cost of education (although they are not always accounted for as education costs), often on the order of 15 percent of the gross salary of education personnel.

Comparability Problems

As a consequence of the diversity of national approaches to providing, financing, and accounting for benefits for education staff, expenditures for certain benefits are counted as education expenditures by some countries but omitted from education expenditures by other countries. Consider expenditures for health care. In some countries, education agencies and institutions pay all or part of the cost of health insurance for their employees. These payments appear in the institutions' financial records, are considered part of personnel compensation, and are reported as education expenditures in national and international education finance statistics. But other countries operate national health systems, under which health care services are provided to the population at large and financed from general government revenue. Where the latter arrangement prevails, the costs of health care services for education personnel do not appear in education accounts but instead are included, along with health care costs for everyone else, in the accounts of the national health ministry or whatever agency administers the national health care system. There also are a variety of mixed systems, in which health care outlays for some education personnel (e.g., contract employees) are included in education expenditures, while outlays for other personnel (e.g., civil servants) are not. A further complication is that some countries have included imputed health care costs in their education expenditure statistics (fictitious payments, similar to those used to represent pension costs), even though no actual payments are made. These differences detract from comparability: Some countries' education expenditure figures include the full cost of health care, others' include part of the cost, and still others' include no health care costs at all. Much the same applies to the other employee benefits mentioned above.

It was not feasible within the bounds of this study to carry out an adequate investigation of expenditures for employee benefits (other than pensions). Information on the subject often was not available from the education agencies and the national statistical offices covered by our case studies. Visits to national social security agencies, health ministries, and other noneducation agencies responsible for social benefit programs would have been needed to fill the gaps. The following remarks on individual countries, though sketchy at best, should at least convey a general impression of the variability in this aspect of education finance.

Findings Concerning Individual Countries

Australia. The treatment of expenditures for fringe benefits is not consistent across sectors or levels of education in Australia. Australia does not include expenditures of public primary and secondary schools for such fringe benefits as unemployment insurance and workmen's compensation either in national education statistics or in its INES data. These items go unreported mainly because methods of accounting for them have not been standardized across the Australian states and territories. Australia does not include costs of health care in education expenditures because health care is provided through a tax on salary as part of a national health care system. However, the outlays of private schools for the benefits cited above are covered by Australia's standard national questionnaire on private school finance, and hence are reflected in national expenditure statistics. Benefits for employees of tertiary-level institutions generally are included in Australia's national and INES data, although the figures pertaining to TAFE institutions may not be complete. In sum, employee benefits are only fractionally covered, and Australia's expenditures, at least for education below the tertiary level, are correspondingly underreported.

Austria. Employer contributions for health care (health insurance) in Austria are considered part of personnel compensation and are therefore included both in Austria's education expenditure figures and its INES submissions. However, such other employee benefits as disability insurance, life insurance, and unemployment compensation are provided to families and the working population at large through the general social security system. Consequently, expenditures for the latter benefits are not included either in Austria's education statistics or its international data submissions.

Canada. Local school boards, universities and other tertiary institutions, and other public and private employers of education personnel all contribute directly to the financing of employees' fringe benefits. These benefits include unemployment insurance, medical and health insurance, and workmen's compensation. Expenditures for these items are considered part of personnel compensation and are included in both Canada's national expenditure statistics and its international data submissions.

France. Fringe benefits are financed differently for civil servants and non-civil service employees. The non-civil servants receive benefits through the general social security system, to which both employers and employees contribute. In addition to pensions, these benefits include health care, family allowances, disability, and unemployment compensation. The employer contributions are counted as part of personnel compensation in expenditure statistics. Civil service employees obtain their benefits through a non-contributory system operated by the ministry of finance. There are no actual employer or employee contributions to this system, and hence no directly observable expenditures. However, France has included estimated costs of these benefits (fictitious payments) in its national and international statistics. The overall estimate is 46.4 percent of the gross salary of civil servants, of which 31.1 percent is for pensions and the remaining 15.3 percent for health care and other employee benefits.

Germany. Education personnel in Germany generally are covered by private health insurance, the cost of which is shared by employers and employees. For federal civil servants, the costs are divided 50-50, but the proportions may be different for civil servants of the Länder. The employer contributions are reported as part of personnel compensation in statistics on education expenditures. Some fringe benefits are handled differently for civil servants and non-civil service employees. For instance, civil servants are guaranteed employment, whereas non-civil service employees are covered by, and contribute to, unemployment insurance funds. We have not obtained information on the financing of categories of social insurance other than those mentioned above.

Netherlands. Various forms of social insurance (other than pensions) are provided through general national systems and financed from general government revenue. The expenditures reported as salaries include amounts designated as partial contributions for health insurance. The employers also pay part of the cost of health insurance, and the employers' share is reflected in the expenditure statistics. A distinctive feature of the Netherlands system is a high level of redundancy pay (unemployment compensation) for former civil servants whose jobs have been eliminated. Outlays for redundancy pay are made directly by the national education ministry and included explicitly in education expenditures.

Spain. Health insurance and other fringe benefits for non-civil service employees are financed through the national social security system. The employers' social security contributions on behalf of these workers are included both in Spain's national expenditure statistics and its international data submissions. Benefits for all civil service employees, including those employed in education, are provided through a special public agency known as MUFACE and funded by employer and employee contributions. Because the share of the employer (government) contributions attributable to education had not been estimated, Spain did not include these contributions in its EAG2 or EAG3 statistics. Such estimates have now been developed, and the costs should be reflected in future education expenditure figures.

Sweden. Multiple employee benefits, including the previously discussed pensions, are financed through "employer fees" paid into the general national social security system. The fees amount to about 42 percent of gross salary, of which about 25 percent is attributable to pensions and about 17 percent to health care and other social benefits. These payments are included as part of personnel compensation in Sweden's national expenditure statistics and its INES submissions.

United Kingdom. Expenditures for health insurance or health care for education personnel are not included in the UK education expenditure statistics. Education staff, like other citizens, receive their medical care through the National Health Service, which is financed out of general government revenue. However, various other social benefits, including unemployment compensation, sick pay, and disability benefits, are provided under the National Insurance (social security) system, to which both employers and employees contribute. The employer contributions are included as part of personnel compensation in education expenditure statistics.

United States. Some benefits for education personnel in the United States are financed through a combination of employer and employee contributions, while others are paid for entirely by the employers. The specific modes of financing and the employer and employee shares of the cost vary among states, and sometimes among local districts. Employer outlays for health and disability insurance, sick pay, unemployment compensation, and other benefits are treated as part of personnel compensation in the financial accounts of school districts, tertiary institutions, and other public and private employers of education personnel. They are included in the U.S. national education expenditure statistics and international data submissions.

General Findings and Implications for Comparability

Two key factors differentiate countries with respect to the treatment of the various types of nonsalary benefits (other than pensions) for education personnel. The first is whether the employers of education personnel are required to make actual payments for the benefit in question. In general, the answer is "no" when benefits are provided under a noncontributory civil service plan or through a national system funded with general government revenue; it is "yes" otherwise. The second factor is whether the country concerned has included either the actual payments, if any, or the estimated costs of benefits (if there are no actual payments) in its education expenditures statistics.

The situation with respect to coverage of health care costs seems to be as follows: Actual payments for health care or health insurance are reflected in the expenditure statistics of five of the ten countries--Austria, Canada, Germany, Sweden, and the United States. In addition, actual payments covering part of the cost of health care in the Netherlands and health care for non-civil service employees in France and Spain are included in the respective country's statistics. France's expenditure statistics also include the estimated cost of health care for civil servants (for whom no actual payments are made by the education sector); however, Spain's actual payments on behalf of civil-service educators have been excluded, because no estimates of the education share of such payments have been available. The education expenditure statistics of the Netherlands include estimates of a portion of health care costs. Those of Australia and the United Kingdom, each of which provides health care for the general population through a national health care system financed from general revenue, omit health care costs entirely.

As a result of these differences, the education expenditures of Australia, Spain, and the United Kingdom are understated (other things being equal) relative to those of the remaining countries. Comparisons among the other countries are undoubtedly distorted, but in uncertain directions and to an unknown degree, by discrepancies in methods of measuring or estimating health care expenses. Although we lack sufficient information to quantify the resulting deviations from comparability, it is apparent that they are potentially significant. For example, the United Kingdom's omission of health care costs from its education expenditure figures would probably result in an error of at least six percent in a comparison of total education spending between that country and the United States.

The situation with respect to other employee benefits is somewhat different. The expenditure statistics of Canada and the United States, and perhaps the United Kingdom, reflect actual payments for the full range of employee benefits other than health care; Sweden's statistics reflect the cost of a comprehensive social insurance package; and Australia's cover the actual expenditures of some education sectors but not others. France's and Spain's cover actual payments only for non-civil service employees; however, France has also included the estimated cost of benefits for civil servants, and the Netherlands appears to have done the same. Austria omits expenditures for benefits other than health care, and Spain has omitted spending on benefits for civil servants. We are not sure whether or how such benefits are taken into account in the German statistics. It would take a considerably more detailed investigation to provide even rough estimates of the resulting deviations from comparability.

Changes to Date and Options for Further Improvement

Inconsistent coverage of expenditures for health care and other benefits for education personnel is primarily the result of international differences in methods of providing and financing such benefits (i.e., structural differences), and secondarily the result of differences in statistical doctrine and practice. The structural differences explain why some countries' education agencies and institutions record actual payments for such benefits, while other countries' do not; however, one must invoke doctrinal differences to explain why France has included imputed expenditures for health care in its statistics, while the United Kingdom has omitted health care costs entirely.

Both the EAG3 instructions and the newer UOE instructions to national data providers indicate that the costs of employee benefits should be included regardless of who provides them or how they are financed. Specifically, the instructions state that,

> Nonsalary compensation includes expenditures by employers (not contributions by the employees), or in some cases expenditures by public authorities that are not the employers, for retirement programs, health care or health insurance, unemployment compensation, disability insurance, other forms of social insurance, noncash supplements (e.g., free or subsidized housing), free or subsidized child care, and such other fringe benefits as each country may provide (OECD, 1994, 1995b).

Moreover, in an effort both to clarify the statistical coverage of fringe benefits and to allow for more detailed international comparisons of uses of funds, the 1995 UOE instrument calls for disaggregation of personnel compensation into three components: salaries, expenditures for retirement, and other nonsalary compensation. The separate recognition accorded the last category underscores the importance of reporting this component of education costs.

It appears that further clarification may still be required as to what countries are expected to do. Given the disparate treatment of health care costs in particular, it may be desirable to add to the instructions language covering specific national circumstances. The revised instructions might specify, for example, that countries with either national health care systems or systems covering all civil servants should estimate the portions of system cost attributable to education personnel (by level and sector). They might offer specific examples and outlines of procedures for constructing such estimates.

Beyond offering such guidelines, OECD could take further steps to encourage compliance, along the lines already discussed in connection with other comparability problems. These might include country-specific technical assistance, or perhaps even the development of initial or proposed estimates by OECD staff. However, pending more detailed investigation of the potential for, and impediments, to improved treatment of the costs of fringe benefits in each country, it is difficult to determine which modes of intervention might be effective.

Notes

1. Certain other issues that could be construed as relating to specific functions or cost categories are dealt with elsewhere. For example, questions concerning capital expenditures and spending for debt service are examined in Chapter 8.

2. It can be argued that dealing with the health and psychological needs of children is a prerequisite for the success of the instructional function, and consequently that health and psychological services are essential support functions. For that matter, the same can be said about food services, on the grounds that being adequately nourished is necessary for learning to occur. On the other hand, one could also say that nutrition and health (including mental health) services are important components of individuals' consumption that would be necessary or desirable regardless of whether the recipients were in school, and that some of these services for children are housed in schools mainly as a matter of convenience.

3. The NCES statistics do, however, cover certain direct state expenditures that states are said to make "on behalf of" local school districts--for instance, expenditures for pensions, textbooks, and student transportation. Also, the U.S. Bureau of the Census, which is responsible for statistics on government expenditures in general, does take federal and state spending into account in compiling its figures on education expenditures.

4. The fact that France has organized its statistics on education expenditures as a satellite system of the general system of national income accounts has provided the framework, and perhaps an extra incentive, for reporting education expenditures comprehensively.

5. In addition to the relatively modest health and psychological services provided to the student population at large, U.S. local school districts are required by law to provide more extensive health-related services to students identified as individuals with disabilities.

6. Some institutions of higher education operate auxiliary enterprises serving the general public as well as students. These include such things as recreational, cultural, and athletic facilities; university farms; and computer centers that offer data processing services to private firms. Expenditure comparability problems may arise in cases where the expenditures and revenues of such operations are intermingled with the general finances of the institutions. We were not able to investigate the full range of auxiliary enterprises (other than student dormitories, dining halls, and the like) in this study.

7. Apart from issues of measurement, the suggestion that employee as well as employer contributions might be included clearly is incorrect because it would involve double counting. Employee contributions would have to be paid out of gross salary, but gross salary is already fully taken into account in the personnel compensation portion of education expenditures.

8. A standard formula used by financial analysts to calculate the accumulated value, m, of a 1 unit contribution per year at interest i for n years is $m = [(1 + i)^n - 1]/i$.

9. A standard finance formula for the annual payment, p, required to amortize an amount of 1 over n years at interest rate i is $p = i / [1 - (1 + i)^{-n}]$. This formula is used to calculate annuity and mortgage payments.

BEST COPY AVAILABLE

Chapter 7

SPECIAL ISSUES CONCERNING EXPENDITURES FOR TERTIARY EDUCATION

In addition to the issues of inclusion and exclusion that concern all levels of education, certain additional issues pertain exclusively, or mainly, to education at the tertiary level. Three such issues are considered in this chapter: (1) whether some or all spending for research in institutions of higher education should be included in education expenditures, (2) whether expenditures of teaching hospitals associated with universities should be considered part of education expenditures, and (3) whether or how subsidies for living expenses of tertiary students (and, in a few cases, secondary students) should be taken into account in comparisons of education spending.

The research and hospitals issues are alike in that each concerns the relationship between the teaching function of tertiary institutions and another function that such institutions regularly perform. Universities are major performers of research and development, some closely related and some related only distantly, if at all, to the institutions' principal educational missions. Likewise, universities in some countries are important suppliers, through university-operated teaching hospitals, of medical services for patients. The question in each case is whether expenditures for the nonteaching function should be included fully, in part, or not at all in statistics on education spending.

The issue of subsidies is similar to the other two issues in the limited sense that the subsidies in question are intended to support nonteaching activities--namely, provision of lodging, meals, and other consumption goods and services for students. However, the parallel is strong only in cases where these ancillary services are provided by the tertiary institutions themselves, as, for example, in cases where universities operate their own dormitories and dining facilities. In other respects, the student subsidy issue is quite different. The subsidies in question are for participants in the educational process, whereas the research and hospital services are mainly for third parties. Also, student subsidies usually are not expenditures of the tertiary institutions themselves but rather are payments from governments (sometimes private donors) to students.[1] Moreover, most of the ancillary services financed with student subsidies are not provided by the tertiary institutions (except for the aforesaid dormitories and dining facilities) but are procured by the students (or their families) in the private market. The main question, therefore, is not whether to exclude the student subsidies but rather where and in what manner to include them in comparisons of education spending.

Expenditures for Research

In addition to educating students, universities and other institutions of higher education conduct research. In some countries, they are the most important research producers. Some of this research is very closely related to--indeed, inseparable from--the teaching function. The training of postgraduate (ISCED 7) students consists in large part of participation by the students in faculty-supervised research. But other university research is less closely related to teaching. For instance, some is carried out in research institutes only loosely tied to the university's teaching departments, sometimes by personnel with no teaching responsibilities, under project-specific grants or contracts from external sponsors. Even the latter may involve some student participation, however. Moreover, apart from direct student participation, it is often argued that a university faculty member must participate in research in his or her academic discipline to remain effective as a teacher. Thus, the relatedness of research to teaching is both a subtle matter and a matter of degree. To the extent that the same research activities contribute to both the expansion of knowledge and the training of students, research and teaching are said to be "joint products" of tertiary institutions.

The Comparability Problem

Given that some research and teaching are inextricably linked and that additional portions of research are not readily separable from teaching, the issue arises of whether any portion of the research carried out at tertiary institutions--presumably the portion least connected to teaching--should be viewed as a productive activity distinct from education. An affirmative answer would logically imply that the corresponding portion of the expenditures of such institutions should be excluded from the statistics on expenditures for tertiary education (and, incidentally, that the corresponding personnel should not be counted as education staff). The practical questions would then have to be addressed of (1) how the excludable portion of research should be defined and differentiated from the includable portion, and (2) how the distinction should be implemented empirically, given the types of data on university research expenditures currently or prospectively available.

In the instructions that accompanied the data collection instruments for EAG1 and EAG2, INES attempted to explain to data providers how expenditures for research should be treated, but the hoped-for clarification was not achieved. In both the INES *Handbook* (1991) and the definitions for EAG2, the relevant paragraph begins with the seemingly decisive declaration that "research expenditures should not be included." But the remainder of the same paragraph reads as follows (OECD, 1991, 1992):

> However, for tertiary education, research and teaching are usually considered as joint products. Therefore, no attempt will be made to allocate a part of teacher costs to education and another to research; salaries will be fully considered as education expenditure. Similarly, the salary costs of researchers working in universities and higher education institutions and the costs of running the

> laboratories in which doctoral students are trained will be considered as education expenditure. Only laboratories which have no connection with training students, or research contracts which have no relation with this training, will be excluded.

Contrary to the opening statement that research should be excluded, the quoted passage seems to imply that all research activities of higher education institutions should be *included*, except for those that have *no* relationship (none whatsoever?) to training students. In addition, the most important categories of spending for university research--the researchers' salaries and the expenses of running research facilities--are explicitly identified as items *not* to be excluded, leaving confusion as to which research-related costs might appropriately be subtracted from total institutional spending.

Not surprisingly, national data providers, faced with these confusing and almost self-contradictory instructions, have interpreted the INES guidelines diversely and treated research expenditures inconsistently. Some countries' EAG1 and EAG2 expenditure figures include essentially all spending for research in institutions of higher education, while other countries' statistics exclude various categories and various percentages of research funding. Because research spending, by any definition, accounts for a substantial fraction of total spending for higher education (by some estimates, more than 20 percent in most cases and over 40 percent in some), these inconsistencies are too important to ignore. They detract from the validity of international comparisons of spending for tertiary education, and even (though to a lesser degree) from the validity of comparisons of spending for education as a whole.

Findings Concerning Individual Countries

The countries examined in this study fall into two distinct camps with respect to reporting of expenditures for research at institutions of higher education. In the first camp are countries that have included in their INES and UOC2 tertiary expenditure figures essentially all costs of research performed at institutions of higher education (with, at most, certain narrow and specific exceptions). In the second camp are countries that have excluded research funds obtained in certain forms (e.g., project grants rather than general appropriations or block grants), research funds derived from certain sources (e.g., from private sponsors), or research outlays specifically identified as such in institutional budgets or accounts. The specifics are as follows (the comments refer, unless otherwise noted, to the expenditure data submitted for EAG2):

Five of the ten countries examined in this study, Australia, Austria, Canada, Germany, and the United States, have included in their education expenditure figures essentially all expenditures for research conducted by institutions of higher education. (The United States has excluded the expenditures of major federally funded national research centers that happen to be administered by universities.[2] Germany has excluded the spending of some independent research institutes operated at, but not by, universities.) For each of these countries, the reported tertiary expenditure figures can be taken to include (abstracting from certain data gaps) the full, combined costs of both the teaching and the research functions of institutions of higher education.

Each of the remaining five countries--France, the Netherlands, Spain, Sweden, and the United Kingdom--has excluded certain portions of research funding from its expenditure statistics. The criterion for exclusion in each case is the mode or source of funding or the budgetary classification of the research outlays, but the details vary as follows:

France. The French figures on tertiary expenditures exclude separately budgeted research expenditures and externally provided research funds but include the full salaries of regular teaching personnel of institutions of tertiary education, even if such personnel are engaged in research; that is, no attempt has been made to estimate or subtract the portion of regular staff salaries attributable to research. Excluded, for example, are funds that universities receive from CNRS (*Centre National de la Recherche Scientifique*) and other government research-funding agencies, funds provided by private firms under research contracts, and the expenditures of university research institutes with separate budgets. For example, if a university faculty member receives part of his salary from a regular academic department of a university and part from a separately budgeted research institute, the first part of his salary but not the second part would be included in tertiary expenditures.

Netherlands. The treatment of research in the Netherlands statistics changed between EAG1 and EAG2, partly in response to preliminary findings from this study. Funds for research in the Netherlands come from three main sources (referred to as the first, second, and third flows): (1) general government grants to institutions of higher education, which provide the bulk of support for the institutions' combined teaching and research functions, (2) funds specifically for research provided by the Netherlands Research Council (NWO), and (3) funds provided under contract by public and private research sponsors. The Netherlands statistics for EAG1 excluded the NWO funds but included the other components. The EAG2 statistics excluded both the NWO and contract research funds, leaving only the research supported by the general government grants to tertiary institutions. Thus, the Netherlands shifted for EAG2 more firmly into the second of the two camps referred to above.

Spain. The Spanish statistics on tertiary expenditures include research outlays to the extent they are supported by general government funds for the universities but exclude most funds provided by public or private sponsors for specific research projects. Most Spanish universities have established independent institutions (foundations, etc.) to manage the separately sponsored projects. These institutions have their own financial accounts, distinct from the university budgets. The research expenditures channeled through these accounts have not been counted as education expenditures and have not been reflected in Spain's UOE or INES data submissions.

Sweden. The Swedish expenditure figures include the full salaries of teaching personnel (and presumably other regular staff) of institutions of tertiary education, notwithstanding the fact that such personnel spend part of their time engaged in research. The research expenditures thus included are considered to represent expenditures "mainly for education of researchers." All expenditures financed with funds specifically identified as being for research are excluded. Among the excluded items are research funds obtained from public authorities (including the education authorities), private firms and other private organizations, and foreign sources. Because Sweden depends heavily on its universities to perform the nation's research, the research share of university spending is among the highest for any country--by one estimate, 43 percent of total spending.[3]

United Kingdom. In the case of the United Kingdom, the statistical treatment of research expenditures has been a by-product of the treatment of expenditures for higher education in general. The UK's INES and UOC2 statistics have included only the portion of tertiary expenditures financed through central government block grants to universities and other institutions of higher education and the portion financed through government-reimbursed student fees. Other sources of funding, whether for research or other purposes, have been excluded. Among the excluded items are research funds provided by national research councils, other government agencies, and private research sponsors. Such research funds (for universities only) do appear in unofficial expenditure figures compiled by a nongovernmental body, the University Statistical Record, but these data have not yet been reflected in the UK's official statistics or its UOC or INES submissions.

A "Quick Survey" conducted by the INES project in May 1993 obtained some information on the treatment of research expenditures from countries not covered by this comparability study. It turns out that most of these countries belong to the second camp--the countries that exclude certain portions of research funding. For example, Belgium, Denmark, Finland, Hungary, Ireland, Japan, Norway, and Switzerland all indicated either that they excluded research funds derived from certain sources or, more often, that they excluded all separately budgeted funds for research.

General Findings and Implications for Comparability

The main consequence of the division of countries into two camps is straightforward. The reported tertiary expenditures of countries that have excluded certain research funds from their statistics will be understated relative to those of countries that have not excluded any research spending. For example, in a comparison of spending for tertiary education between France and Germany, the tertiary expenditures of France would appear lower relative to those of Germany than they are in reality, because France excludes all separately funded research expenditures from its figures, while Germany includes essentially all research performed by institutions of higher education.

Moreover, comparisons among the countries that exclude certain research funds also are likely to be distorted, because each country has defined its own basis for exclusion and omitted a different share of its research spending. For example, the Netherlands and the United Kingdom have excluded research funds obtained from certain sources, Spain has excluded funds for specific sponsored research projects, and France has excluded all separately identifiable research spending, regardless of funding source. Among the countries that have excluded some research funds, four different but overlapping criteria for exclusion can be identified: (1) the source of funds--that is, whether funds are obtained from the education authorities, from other government agencies, or from private organizations; (2) the mode of funding--whether funds are provided for general support of the institutions or specifically for research, and if the latter, whether for research in general or for specific research projects; (3) whether the research is performed within regular academic departments or in separate research institutes, and (4) whether the research expenditures are accounted for separately in university budgets. Individual countries have applied different combinations of these criteria.

One exclusion criterion is conspicuously absent, however: No country has tried to apply the principle set forth in the INES instructions--namely, that research expenditures should be included or excluded according to whether the research in question is related to teaching. The lack of any attempt to sort out expenditures on this basis is not surprising. It reflects the difficulty of operationalizing "relatedness to teaching" (clearly not an either-or attribute) and the absence of expenditure data reflecting such a classification. Nevertheless, it raises a question about the conceptual soundness of the types of distinctions countries have substituted for the substantive distinction called for by INES.

The implicit assumption that seems to be shared by the countries that have excluded certain research funds is that research financed from general university funds is more likely to be related to teaching than is separately funded or separately budgeted research; but the assumption is not easy to justify. In several countries, separate research funding comes from national science agencies, such as the National Research Councils in the United Kingdom, the National Center for Scientific Research (CNRS) in France, the Dutch Research Council (NWO) in the Netherlands, and the National Science Foundation (NSF) in the United States. The basic scientific research paid for with such funds probably is more likely than most other research to be integrated with the training of postgraduate students. Additional funding for basic science in universities, also likely to be related to training of postgraduate students, comes from government agencies responsible for such fields as health, agriculture, energy, and the environment. It is not evident that such research would be less related to teaching than the research paid for out of general university budgets. Although some separately funded university research undoubtedly is unrelated or only minimally related to teaching, the relevant attributes are not separate funding and external sponsorship per se but rather the nature, the subject matter, and perhaps the organizational setting of the research. It would be difficult to argue, therefore, that excluding separately funded or separately budgeted university research is even roughly equivalent to excluding research unrelated to teaching.

Changes to Date and Options for Further Improvement

In theory, each of the following three options for dealing with research expenditures could--if successfully implemented--enhance the comparability of statistics on spending for tertiary education: (1) exclude all expenditures for research, (2) include expenditures for research related to teaching but exclude expenditures for research unrelated, or less related, to teaching, (3) include all expenditures for research at institutions of higher education (perhaps with some narrowly defined special exceptions). However, each option has significant conceptual shortcomings, and the first two options pose major practical problems as well.

The option of excluding all research funds implies rejection of the proposition that teaching and research (that is, at least some research) are joint products. Joint products, as defined by economists, are multiple outputs obtained from a single productive activity, hence products associated with a single set of resource inputs and the corresponding costs. In principle, one cannot separate expenditures for two joint products in any nonarbitrary manner. Nevertheless, some countries have attempted to separate teaching and research outlays by calculating "research coefficients" based on the purported time allocations of university personnel.[4] In some cases, these coefficients provide the basis for the estimates of expenditure for research in higher education that countries have provided for OECD's science and technology indicators.[5] But because the time allocation studies have been conducted only in certain countries, usually as one-time events, in widely separated years, and according to different methodologies, and because of the underlying conceptual objection, this approach is not suitable for developing internationally comparable education expenditure statistics. Lacking an acceptable method for separating expenditures for research from expenditures for teaching, we are forced to discard the option of excluding all spending for research.

The option of including research related to teaching and excluding research unrelated to teaching would be attractive if the distinction between the two were reasonably clear and the data needed to separate the two were available. But neither condition is met, for reasons already outlined above. The problem with the methods currently used by several countries to exclude certain research funds from tertiary expenditures is not only that the exclusion criteria are inconsistent among countries (this aspect is potentially correctable) but also that the criteria for exclusion have nothing to do with the nature of the research. If all countries were to exclude separately budgeted research, the results would have more to do with national budget structures and financial accounting practices than with the connection between research and teaching. Likewise, if all countries were to exclude externally or separately funded research, the results would reflect the diverse national arrangements for financing research and higher education, not the nature of the research performed at tertiary institutions. Therefore, although distinctions among different sources and modes of research financing may be of interest in their own right, they should not be the basis for excluding a portion of research funding from the tertiary expenditure statistics.

The third option, including essentially all research expenditures of institutions of higher education, has the advantage of empirical feasibility. It requires no separate data on research spending. Countries would be asked only to provide data on the total expenditures of their institutions of higher education, including all expenditures financed under research grants and contracts. The main potential drawback does not concern the comparability of the expenditure statistics per se, but rather the interpretation of the results. As some participants in the INES Technical Group have pointed out, the inclusion of all research funding could result in misleading comparisons between countries that rely more and less heavily on universities as research providers. It seems that some of the smaller countries call upon their universities to conduct research that would be performed in larger countries by separate research agencies or research laboratories not attached to universities. Consequently, expenditure figures that might seem to indicate a generous level of support for tertiary education and a large investment per tertiary student could instead be the reflection of a national policy of entrusting research responsibilities to universities rather than to other scientific institutions. The expenditure statistics would not be wrong, but they could lead to the wrong policy conclusions.

Given the options and their limitations, the INES project has chosen to pursue a dual solution to the problem of research expenditure: on one hand, attempting to improve the comparability of statistics on tertiary spending by asking countries to include essentially all research expenditures (with only narrowly defined exceptions) and, on the other hand, developing supplementary comparisons of tertiary spending exclusive of certain research outlays. Thus far, however, only limited progress has been made toward carrying out the first part of this strategy, and even less in carrying out the second.

Consistent with the decision to seek full coverage of research expenditures, the instructions for both the EAG3 and UOE data collections include this statement:

> All expenditures for research performed at universities and other institutions of tertiary education should be included in education expenditures regardless of whether the research is financed from general institutional funds or through separate grants or contracts from public or private sponsors. The only exception is that expenditures for independent, organizationally separate, government research institutions should be excluded in cases where the connection between the universities and the research institutions is purely administrative.

To the extent that countries comply, it should be possible to eliminate the comparability problems at the tertiary level caused by inconsistent coverage of research spending by different countries.

It appears, however, that compliance was spotty for EAG3. Some countries did include types of research funding that had previously been omitted, but others indicated either inability or unwillingness to do so. The unwillingness seems to reflect both the concern about possible misinterpretation expressed above and the further concern that expenditure figures embracing all university research will create an impression of national spending for tertiary education at odds with that conveyed by the country's own statistics. Comments to INES from some national data providers suggest that these concerns would be assuaged if OECD were able to present tertiary expenditures both gross and net of research spending.

As an initial step towards developing such a presentation, INES added to EAG3 a supplemental analysis showing, for a few selected countries, expenditure per student both with all research expenditures included and with estimated research expenditures netted out (OECD, 1995, pp. 350-51). To determine how much spending to net out, INES used data on higher education R&D (research and development) expenditures from the R&D data base of the OECD Directorate for Science, Technology, and Industry (OECD/DSTI, 1994). The analysis, though beset by major data problems, sufficed to demonstrate two points: first, research spending constitutes an important fraction of total expenditure for tertiary education, and second, the estimated research share of total spending varies considerably among countries (estimated shares ranging from 14 to 37 percent among the eight countries covered). At the same time, the exercise also showed that the existing data are not adequate for the intended purpose. They fall short not only in terms of coverage and comparability but also because they offer no distinction between research more related and less related to the teaching function.[6] It seems, therefore, that if the idea of excluding certain research funds from tertiary spending is to be pursued, special data will have to be collected for that purpose.

In a further effort to determine what approaches to the university research issue are feasible, a supplemental table on expenditures for research has been appended to the UOE finance data collection instrument for 1995. Its purposes are (1) to clarify the relationship between the research component of each country's reported tertiary expenditures and the same country's DSTI figures on higher education R&D spending, and (2) to determine whether countries are able to provide data on the amount of separately funded or separately budgeted research spending included in their tertiary expenditures. The results should help OECD to assess the prospects for a conceptually sound indicator of tertiary spending net of certain spending for research and to determine what additional data collection may be needed to produce such an indicator.

Expenditures for Academic Hospitals

One of the important teaching functions of tertiary institutions is to train medical doctors and other medical personnel. Much of this training takes place in hospitals. In some countries, the academic hospitals (also called teaching hospitals) belong to or are administered by the universities. Where this is so, the expenditures of the hospitals, or some portion thereof, may be included in university budgets, and hence may be considered part of expenditures for tertiary education. In certain other countries, the teaching hospitals are not owned or administered by the universities but arrangements exist under which the education authorities are obliged to pay a share of the hospital costs (the remainder is usually paid by the health authorities or covered by the country's system for financing patient care). In most countries, however, the education authorities are not responsible for the financing of teaching hospitals, and hospital costs are not reflected in either the national education expenditure statistics or the UOC2 or INES submissions. Obviously, international comparisons of expenditures for tertiary education would be distorted if some countries' figures included expenditures for teaching hospitals while other countries' expenditures did not.

To avoid ambiguity, let us make clear that the hospital costs in question are not the direct costs of training medical personnel but rather the general expenditures of academic hospitals--that is, expenses incurred mainly to provide medical services to patients. Most costs of training are not included in hospital expenditures but rather in the expenditures of medical schools or medical faculties, which usually are included in general university budgets. In cases where some teaching personnel are employed by hospitals rather than medical schools, there is no question that their salaries and related expenses should be counted as education expenditures. The issue at hand does not concern these direct and identifiable education costs but rather the general operating and capital costs of the university-related hospitals.

Two of the countries examined in this study, Germany and Austria, included substantial portions of the general expenditures of academic hospitals in the expenditure figures submitted for EAG2. A third country, the Netherlands, included such expenditures in its EAG1 statistics but then excluded them from the EAG2 data. The remaining seven countries generally do not include such expenditures in their tertiary spending figures, with minor exceptions noted below.

In Germany, academic hospitals are under the jurisdiction of the education authorities. The gross expenditures of these hospitals are nearly as large as the expenditures of the universities themselves (approximately DM 15 billion and DM 18 billion, respectively, in 1991). However, the figure for hospital expenditures that Germany has included in its UOC and INES statistics is not the gross expenditure for these hospitals but rather only a fraction of that amount, calculated (in the case of current expenditures) as the difference between gross current expenditures and the direct payments received by the hospitals from patients, insurance companies, and other parties responsible for paying for medical services. The rationale for netting out the direct payments is that hospital expenditure net of direct receipts for medical services provides a rough measure of the cost attributable to the hospitals' teaching function. In addition, 25 percent of the capital outlays of the teaching hospitals has been reported as education expenditures. These hospital costs amounted to about DM 3.5 billion in 1991, or about 15 percent of the total tertiary expenditures reported to INES.

Austria's three teaching hospitals, like most of the country's other hospitals, are operated by the Länder, but the higher education authorities are obliged to make substantial payments to them. In addition to covering direct teaching costs (mainly salaries of teaching staff employed by the hospitals), the required payments finance no less than 40 percent of the total current and capital expenditures of these institutions. In 1993, a large part of this expenditure consists of the construction and operating expenses of a major medical center (VAMED) being developed at the University of Vienna. These hospital expenditures account for approximately 17 percent of the total tertiary expenditures shown in the Austrian UOC2 and INES statistics, only a very small fraction of which can be attributed to the direct costs of training medical personnel.

The teaching hospitals of the Netherlands are not under the jurisdiction of the universities but, by virtue of an inter-ministerial agreement, the education ministry is obliged to pay 25 percent of the cost of these institutions through the higher education budget. The health ministry, which operates the hospitals, pays the other 75 percent. The reason for the contribution from the education sector has been described variously as (1) to offset the higher cost of providing patient care in the teaching hospitals or (2) to "buy a place" for medical students to study. The specific figure of 25 percent appears to be the outcome of a political negotiation rather than a result of any attempt to measure education-related cost. The Netherlands decided (partly in response to this comparability study) to exclude hospital expenditures from the EAG2 and subsequent INES statistics; however, hospital expenditures were still included in the Netherlands UOC2 submission for 1991.

The other countries covered by this study have not included in their UOC2 or INES statistics any general expenditures of teaching hospitals--that is, expenditures attributable to medical services for patients. The teaching hospitals of Australia, Canada, France, Spain, Sweden, and the United Kingdom are not owned or operated by universities but, like other hospitals, are under the jurisdiction of authorities or organizations responsible for health care. In the absence of arrangements for sharing of general hospital expenses by the education authorities, the costs of these hospitals appear in health rather than education budgets.

The case of Sweden is slightly ambiguous in that the government provides a special state grant to teaching hospitals to compensate for costs of medical education and training. This grant is counted as education expenditure. However, it is apparently not intended to cover any portion of the cost of patient care and is not of a magnitude comparable to the hospital expenditures that Germany and Austria have counted as part of education spending.

The teaching hospitals of the United Kingdom receive extra funds from the National Health Service to compensate for costs associated with the training function, but these funds, like all other hospital funds, are reported as health rather than education expenditures. Similar arrangements probably exist in other countries, but no specific information to that effect was obtained by this study.

The United States deals with teaching hospitals differently from other countries. Many U.S. teaching hospitals are owned and operated by public or private universities. Both the expenditures and the revenues of these hospitals are included in university budgets. These hospital outlays also are included in the expenditures reported by institutions of higher education to the U.S. National Center for Education Statistics; however, they are placed in a category of their own, separated from other types of university spending. The United States has excluded the hospital expenditures from most internal analyses of education costs (e.g., comparisons of spending per student among U.S. universities) and, to be consistent, also has excluded expenditures for teaching hospitals from its UOC2 and INES submissions.

In 1993, the INES project conducted a "quick survey" to obtain, among other things, information about the coverage of hospital expenditures in countries' statistics on tertiary expenditures. Among the respondents to that survey, Switzerland is the only country not previously mentioned that has included in its tertiary expenditures a substantial fraction of the cost of teaching hospitals (about 20 percent). A few other countries, for instance, Belgium and Ireland, acknowledged including small education-related items of hospital expenditure in their INES statistics. Based on another source of information, we believe that Japan includes expenditures for academic hospitals in its internal statistics on university expenditures, but we are not sure whether such expenditures are also reflected in the INES submissions.[7] Most other countries report that costs of teaching hospitals have not been included.

The international comparability of statistics on tertiary expenditures would be improved by eliminating the present disparities in the coverage of expenditures of teaching hospitals. In theory, consistency could be attained either by asking countries to remove all hospital expenditures from their tertiary expenditure figures (except for direct expenses for training medical personnel) or by adopting a definition and estimation method that countries could use to calculate an "education related" share of hospital costs. These are not equally reasonable options, however. Considering that only a few countries have included any hospital expenditures, while the great majority of countries have excluded them, and that the hospital costs included by the few countries are easy to identify and separate, it would be a relatively simple matter for all countries to exclude hospital costs entirely. In contrast, there are a number of conceptual and practical obstacles to developing internationally consistent measures of a so-called education-related portion of hospital costs.

The main rationale that has been put forward for including some hospital costs in education expenditures is that the cost of providing medical services is higher in teaching hospitals than in other hospitals. This is surely true, but it does not follow that all of the cost difference is attributable to training of medical personnel. For instance, costs may be higher in teaching hospitals partly because such hospitals deal with more severe medical problems and offer more diverse and complex medical procedures. Also, some of the additional cost may be attributable to medical research, which is likely to be disproportionately concentrated in the university-affiliated teaching hospitals.

Measuring education-related cost differentials would be difficult from a technical perspective. An important complication is that the extra costs associated with teaching are likely to be offset to a significant degree by the uncompensated (or under-compensated) services provided to patients by the medical personnel being trained (medical students, interns,

BEST COPY AVAILABLE

student nurses, etc.). It is not evident that the alleged training-related cost differentials could be measured satisfactorily. There is little question, however, that such measurement would be a complicated matter, requiring specialized cost studies, and that the information could not simply be extracted from budget documents or standard financial accounts.

It is indicative of the potential difficulties that each of the three countries that has included a share of hospital expense in education expenditures has calculated that share differently, and none has based its calculations on an analysis of the incremental costs associated with the training function. The 25 percent education share in the Netherlands and the more-than 40 percent education share in Austria seem to be politically determined. The education share in Germany is whatever remains after deducting direct receipts for patient care from total spending; it does not reflect an attempt to separate medical and training-related expenses. This reliance on essentially arbitrary methods, coupled with the resulting sharp differences in education shares, offers little encouragement that education-related hospital costs could be measured consistently.

Based on these considerations, OECD has taken the position that expenditures of teaching hospitals (other than identifiable direct teaching costs) should not be included in the statistics on tertiary expenditures. Hospital expenditures were not mentioned in the instructions for EAG1 and EAG2, but the instructions accompanying the finance data collection forms for EAG3 state that

> Expenditures of or for academic hospitals (teaching hospitals) should not be included in education expenditures, except to the extent that they are specifically related to training of medical personnel. In particular, all expenses of patient care and other general expenses of academic hospitals should be excluded from the education figures, even if such expenses must be paid by the education authorities.

Essentially the same language appears in the UOE instructions. Most countries have already complied, and hence are unaffected by this instruction. Because the few countries that are affected already know how much hospital spending they have included, they should encounter no difficulty (except, perhaps, on the internal political front) in excluding such expenditures in the future.

Student Aid and Subsidies for Student Living Expenses

The OECD countries have widely varying philosophies and policies concerning the division of the cost of tertiary education between individuals and society. Some European countries not only provide tertiary education free of charge but also give students substantial stipends for room, board, and other living expenses. Others provide tuition-free schooling but require students or their families (except, perhaps, those with low income) to cover living expenses themselves. In a few cases, tertiary students are required to pay tuition fees, but nearly all the students then receive offsetting government scholarships. Only a few countries--most notably the United States and Japan--require large numbers of students both to pay substantial net tuition fees (that is, net of scholarships and other financial aid) and to finance most living expenses from their own or their family's resources.

Student subsidies take a variety of forms. Different countries offer different mixes of grants and loans. In addition, countries use a number of less direct methods to help finance student living expenses, such as providing subsidized meals and housing, furnishing subsidies in kind (e.g., free transportation), offering family allowance payments contingent on student status, and allowing special tax benefits to families of postsecondary students.

A few countries also offer significant financial aid to upper-secondary students, mainly to help pay the living expenses of individuals of post-compulsory age who are still attending school. In addition, some of the compensation paid to apprentices and other participants in work-place training could be construed as a subsidy for living expenses (see Chapter 3). Although the rest of this chapter deals only with tertiary education, we mention some points concerning secondary-level financial aid at the end of this section.

Comparability Problems

The main expenditure comparability problems related to financial aid and subsidies for student living expenses include (1) problems stemming from the commingling of student subsidies with expenditures for educational institutions, (2) problems due to incomplete or inconsistent statistical coverage of financial aid, and (3) problems in isolating the living-expense-subsidy component of financial aid to students, and hence in sorting out the net household contribution to education expenditures. We discuss these in turn below.

Commingling of Institutional Expenditures and Student Subsidies. A problem that detracted from all pre-EAG3 international comparisons of spending for tertiary education is that some countries' expenditure figures mixed together expenditures for educational services and public subsidies for student living expenses. The commingling of these two functionally distinct categories of spending virtually ruled out valid expenditure comparisons between certain sets of countries. Countries that subsidize large fractions of student living expenses with public funds appeared, misleadingly, to be spending more on tertiary education (other things being equal) than countries in which households must pay for most living expenses themselves. Moreover, of the countries that provide substantial subsidies for living expenses, some chose to include the subsidies in their tertiary expenditure figures while others did not, thereby further undercutting the comparability of the tertiary expenditure figures.

Consider two hypothetical countries: country A, which spends $10,000 per student per year to operate universities but offers no subsidies for student living costs, and country B, which spends $8,000 per student per year to run its universities and provides a $4,000 per year public subsidy to each university student for lodging, meals, and other living expenses. A comparison of the combined cost of institutions and student subsidies would indicate that country B spends $12,000 per student per year, or 20 percent more than the $10,000 per student spent by country A. But this finding would be misleading in two respects:

First, country A spends more per student than country B--$10,000 compared with $8,000--to hire teaching and nonteaching staff and procure all the other resources needed to operate institutions of tertiary education. Therefore, if the question is how much each country spends to provide tertiary education services, the answer has to be that country A spends 25 percent more per student than country B, the availability of stipends for living expenses in country B notwithstanding.

Second, the fact that only country B subsidizes student living expenses does not imply that country B's students live better or spend more to sustain themselves while in school than the students of country A. The reality might even be the opposite. For example, total annual living expenses per student might amount to $6,000 in country B (of which $4,000 is covered by the public subsidy) and $7,000 in country A (none of which is subsidized). All one can say for sure is that $4,000 in living expenses per student per year is *publicly* financed in country B; the amount financed privately in each country is unknown.

Expressing the point differently, we can say that student living expenses up to the level of $4,000 per student per year are visible in country B (that is, reflected in expenditure statistics) because they are financed through public subsidies, whereas all student living expenses are invisible in country A because they are financed privately by students and families. There is room for debate over whether, or in what circumstances, student living expenses should be counted as part of the cost of tertiary education, but it cannot be correct to count living expenses only when they are financed by government subsidies and to ignore them otherwise. Yet this is precisely what is done whenever statistics have been presented that commingle expenditures for educational services with student subsidies.

But what may seem the obvious remedy--to exclude subsidies for student living expenses from international comparisons of tertiary spending--would not be an acceptable solution--at least not by itself. Countries have argued, justifiably, that scholarships and other subsidies for students are important parts of their public education budgets and cannot be ignored in either national or international statistics on education finance. In principle, it should be possible to accommodate this concern by collecting separate data on expenditures for educational services and subsidies for student living expenses and then presenting the two either separately or in combination, depending on the perspective from which countries are to be compared. The prospects for doing this in practice are considered below.

Incomplete or Inconsistent Coverage of Financial Aid. The expenditure statistics of many countries provide incomplete coverage of financial aid to tertiary students. The incompleteness results, in most cases, from taking into account some forms of financial aid but not others. The data gaps translate into errors in comparing total national spending for tertiary education (institutional expenditures plus student subsidies). Incomplete reporting also makes it difficult to measure each country's subsidies for student living expenses and to estimate the share of the cost of tertiary education borne by households. In addition, the data limitations have thus far thwarted efforts to develop international-comparative indicators of financial aid itself. The last appears to be a significant loss, as many national education policymakers have expressed interest in precisely such comparisons.

The gaps in the statistical coverage of financial aid are of several different kinds. First, some countries have reported only the scholarships and certain other subsidies provided by the central government, even though regional or local governments, private firms, and other private organizations also distribute aid to students. For the most part, this is only a minor problem, however, because central-government funding of financial aid usually dominates, even in countries that have decentralized other aspects of the financing of tertiary education.

Second, the statistical coverage of loans to students has been scanty compared with the coverage of scholarships and other grants. One reason is that there was little discussion until recently, and hence no adequate guidance for data providers, on how student loans should be represented in expenditure statistics: Gross or net of repayments? With or without taking interest payments and subsidies into account? A complicating factor is that student loans in some countries (in particular, the United States) come from private financial institutions, whose transactions are may not be reflected in standard education data collections.

Third, in addition to items explicitly identified as student subsidies, some countries provide family allowances contingent on student status. For example, a national family allowance system that normally pays a certain sum to families for each child up to age 18 may let payments continue up to age 25 for persons enrolled as tertiary students. Arguably, the latter payments should be considered a form of student aid. Thus far, however, not all countries have acknowledged that contingent family allowances are functionally equivalent to scholarships, and most have not included them in their education expenditure statistics.

Fourth, indirect subsidies for student living expenses, in the form of subsidized residence halls, dining facilities, student health services, free or reduced-price transportation, etc., often are omitted from education statistics or, when included, are difficult to identify and to separate from other education expenditures. Both the intermingling of these indirect subsidies with expenditures for educational services and the failure to combine them with direct subsidies detract from the expenditure comparisons.

Fifth, some countries provide special tax benefits to families with children enrolled in educational institutions. These may consist, for example, of a tax credit or a deduction from taxable income of a certain amount for each such child. Such subsidies are not normally taken into account in national statistics on education finance, and no provision has been made for including them in international data collections. Although a strong theoretical argument can be made for including tax benefits in any broad assessment of financial aid to students, to do so would open up a range of difficult issues, extending well beyond the scope of the existing international education data collection system.

Difficulty in Separating Subsidies for Costs of Educational Services from Subsidies for Student Living Expenses. A more subtle comparability problem associated with financial aid has nothing to do with quantifying the amount of aid per se but rather with determining how financial aid is used by the recipients: How much translates into offsets for tuition fees and other costs of tertiary education services (including direct purchases of books, materials, etc.), and how much remains to help cover student living expenses? This information is relevant for several reasons: first, to permit correct measurement of the net household contribution to spending for tertiary institutions, so that the public and private shares of funding for tertiary education can be calculated; second, to ensure that financial aid is not double-counted in statistics on total national spending for tertiary education; and third, to isolate the living-expense-subsidy component of financial aid to students, so that such subsidies can eventually be compared across countries.

Thus far, no satisfactory, generally applicable method has been devised for distinguishing between the portion of financial aid that covers costs of educational services and the portion that subsidizes living expenses. In preparing its expenditure indicators, OECD has relied on various ad hoc procedures, applied to the statistics of different countries. As a result, some double counting seems to have occurred, and errors have been introduced into the indicators of sources of funds for tertiary education.

The countries whose statistics are most affected by the problem are the few that require substantial numbers of students to pay substantial net tuition fees. In these countries, some students may receive financial aid in excess of tuition charges, leaving a portion of the aid money available to defray living expenses, while other students receive aid insufficient to cover tuition, and still others receive no aid at all. It is not possible in such cases to determine the net subsidy for living expenses from aggregate data. Special estimates would be required, perhaps based on individual-level data, of a kind that not all countries can provide. To appreciate the nature of the difficulty, consider the following very simple two-student example.

Suppose that each of two students must pay a $3,000 tuition fee to a university. One student receives a scholarship of $5,000, which is sufficient to cover the tuition fee plus $2,000 of living expenses, while the other receives a scholarship of only $1,000, which covers only a fraction of the tuition charge. In the aggregate, tuition charges and scholarships both total $6,000, so it would appear to someone looking only at the aggregated data that (1) the tuition fees are fully and exactly offset by financial aid, and (2) no financial aid remains available to cover student living expenses. From the individual-student data, however, we can see that $2,000 of the $6,000 in scholarships constitutes a subsidy for the first student's living expenses, while the remaining $4,000 covers tuition payments. The correct answer is that two-thirds of the scholarship funds offset tuition fees and one-third subsidizes living expenses, but there would be no way to determine this from the aggregate data alone. Instead, one would have concluded falsely that households make no net contribution to the support of educational institutions (i.e., they pay no net tuition fees) and that they must finance all student living expenses from their own funds.

Even in cases (the majority) where countries charge no tuition fees, determining the net national subsidy for student living expenses is not necessarily a straightforward matter. The reason is that even students not subject to tuition charges must still incur non-negligible costs for books, computers, instructional materials, and other personal items used in education (referred to previously as direct household purchases of education goods and services). Because most countries lack data on these direct purchases, there is no sound basis for determining how much financial aid remains available to subsidize living costs.

The inherently difficult measurement problems have been aggravated in many cases by the previously noted gaps in national statistics on financial aid to students. A correct calculation of subsidies for student living expenses would require a comparison of the financial aid that students receive *from all sources combined* with the amounts that the same students spend for tuition fees and other costs of educational services. If a country omits some forms of aid, its subsidies for living expenses will be correspondingly underestimated, and to the extent that some countries report financial aid more comprehensively than others, inter-country comparisons of the subsidies will be distorted. The realization that such large distortions are likely is what has discouraged OECD, up to now, from attempting to add an indicator of student subsidies to its education indicator reports.

Findings Concerning Individual Countries

The following comments cover each country's system of financial aid to students, the fees charged by tertiary institutions, direct and indirect subsidies for student living expenses, and the treatment of these items in the country's tertiary expenditure statistics. In this particular instance, we include remarks about a country not covered by the study, Japan, whose distinctive approach to financial aid would otherwise go unrepresented. Unless otherwise indicated, the information pertains to the data collection for EAG2.

Australia. Under the Australian Higher Education Contributions System (HECS), students in higher education are required to pay tuition fees amounting to 20 percent of institutional costs. Students may defer the fees until after graduation, which means, in effect, that they can obtain loans. In addition, about 45 percent of tertiary students receive financial aid from the government, in amounts negatively related to family income. Tuition aid and subsidies for living expenses are separated in the Australia data. The latter were not included in Australia's EAG2 data submission but have been included in the EAG3 and subsequent statistics. An additional element of the public subsidy for living expenses is the indirect subsidy provided to university residential facilities (organized, in some cases, as independent operations) through university budgets.

Austria. The Austrian federal government provides scholarships to tertiary students (and also to post-compulsory secondary students). Because students pay only very small registration fees to institutions, these scholarships translate into subsidies for student living expenses, except to the extent that they are spent for books and other instruction-related items. The inclusion of the scholarship amounts in Austria's UOC2 and INES statistics resulted in commingling of subsidies for living expenses with expenditures for educational services. Austria also provides family allowances, which are contingent, for persons age 19 and older, on "successful enrollment" in an educational institution. These can be construed as another form of subsidy for student living expenses but have not (yet) been included in education statistics. Scholarships provided by local governments and private sources (small amounts) also have been omitted. The inclusion of the aforesaid items would enlarge the living expense component of reported education expenditures. Austria also provides public subsidies to private non-profit organizations that operate dormitories and dining facilities at tertiary institutions. It is not clear where these appear in the UOC2 and INES statistics, but it would be reasonable to interpret them as additional subsidies for student living costs.

Canada. The federal government and the provinces both provide scholarships and loans to students who attend tertiary institutions. For some students, the amount of aid exceeds tuition fees, which means that some fraction of financial aid translates into subsidies for student living expenses. It would be difficult to estimate the living-expense component of aid, and no attempt has been made to do so. Consequently, Canada's expenditure figures intermingle some subsidies for living expenses (the amounts are said to be minor) with expenditures for educational services.

France. Students pay no fees, or only minimal fees, to educational institutions. The education ministry provides grants (*bourses*) to about 17 percent of the students (a 1991 figure) based on "social criteria" (mainly parental income). Some additional *bourses* for post-graduate study are based on merit. There is a small student loan program and some minor additional aid from local governments. Most of this aid, other than what is spent for books, materials, etc., is available to cover student living expenses. France also provides indirect aid in the form of subsidized dormitories (for about 10 percent of students) and subsidized dining facilities at tertiary institutions. All the above are reflected in the French education statistics and the UOC and INES submissions. Not reflected in the education spending figures are rent subsidies, paid through the social security system, for students who obtain housing on the private market; family allowances, which continue after age 16 for students; and certain tax reductions available to families with children in school.

Germany. Tertiary education is free to students in Germany, except for some very minor fees. The financial aid system (known by its acronym, *Bafög*) provides public subsidies for student living expenses, consisting of a combination of grants and interest-free (but inflation-indexed) loans to students. The amount of aid, if any, for which a student is eligible depends on his or her family income. About 30 percent of tertiary students receive the subsidies. German students also receive indirect subsidies, provided through student associations (*Studentenwerke*), in the form of subsidized student housing and meals. The *Bafög* and *Studentenwerke* subsidies have been included in Germany's UOC2 and INES submissions (with loans reported gross of repayments). Some scholarships provided by local governments and private parties apparently are omitted from the finance statistics. Also excluded from the statistics are some fairly substantial tax deductions allowed to families with children enrolled in higher education.

Netherlands. Students must pay fees to universities and other institutions, but these fees are offset in the great majority of cases by financial aid from the central government.[8] (One can debate whether this system of government-reimbursed tuition fees is "really" a roundabout form of government funding of institutions.) In addition, many students receive substantial aid, consisting of a combination of grants and loans, in amounts negatively related to family income, to cover "maintenance" costs (i.e., living expenses). Because financial aid equals or exceeds tuition fees in almost all cases, it is relatively easy to estimate the subsidy for living expenses; the only complication is the need to subtract the costs of books and other instruction-related items. In the Netherlands UOC2 and EAG1 submissions, all financial aid (for both tertiary and secondary students) was included in education expenditures. In the EAG2 submission, the portion of student financial aid identified as subsidies for living expenses was excluded.

Spain. Tertiary students are required to pay relatively modest tuition fees. Low-income students receive financial aid (BECAS) in the form of remissions of tuition, paid for by transfers from the national education ministry to the institutions. In addition, the ministry provides grants to lower-income students to cover a portion of living expenses. These may result in some degree of double-counting because they are not netted out against the family expenditures for education reported in Spain's household expenditure survey. Both types of financial aid have been included in the Spanish UOC2 and INES submissions.

Sweden. Financial aid to students, consisting of about equal amounts of grants and loans, accounts for almost one-third of Sweden's total expenditures for tertiary education (or, putting it differently, the bill for financial aid is 50 percent as large as the total cost of supporting tertiary institutions.) In the absence of tuition fees, most of this financial aid, except for the minor fraction spent on books and other instruction-related items, translates into subsidies for student living expenses. Sweden's EAG2 expenditure figures included the nonrepayable (grant) portion of these subsidies but excluded the subsidies provided in the form of government loans to students.

United Kingdom. Students are required to pay tuition fees to institutions of higher education, but regular students receive "mandatory awards" (scholarships) covering these fees from their home LEAs, and some other students receive discretionary awards. The LEAs, in turn, are reimbursed by the central government. (It can be debated, therefore, whether the mandatory awards are more accurately characterized as financial aid to students or as enrollment-based government grants to institutions.) Tertiary students (and some secondary students) also receive "maintenance grants" in amounts negatively related to family income. These can cover substantial portions of living expenses. A recently instituted student loan program provides additional aid to cover living costs. The separation of awards and maintenance grants makes it relatively easy to estimate subsidies for living expenses, except for the problem of having to distinguish between living costs and outlays for books and other instruction-related items. Both awards and maintenance grants have been included in the UK's INES and UOC2 submissions, but some financial aid from other sources (apparently minor) has been omitted.

United States. In addition to providing scholarships for lower-income students and certain direct loans, the U.S. federal government guarantees and subsidizes loans made by private financial institutions to students. These guaranteed loans account for the bulk of all student aid. States, private firms, and private non-profit organizations also offer scholarships and other grants. In addition, both public and private institutions of higher education commonly provide scholarships out of their own budgets, often in the form of full or partial remissions of tuition fees. Because students often receive aid in multiple forms and from multiple sources, and because tuition fees vary widely, it would be difficult to determine how much aid translates into subsidies for living expenses. Estimates might be developed using sample-survey data from studies of student budgets. In its INES submissions for EAG1 and EAG2, the United States took into account only the grant portion of federal financial aid. It used a rough rule of thumb to estimate the portion of federal scholarship aid available for living expenses and then subtracted that amount from total tertiary spending. However, because student loans and scholarships from nonfederal sources were omitted from the data, the validity of the results is questionable; also, there is some risk of double-counting scholarship funds. Because of the data gaps and technical problems, a comprehensive estimate of subsidies for living expenses would be difficult to produce.

Supplemental Note on Japan. The special significance of Japan for the discussion of financial aid is two-fold: First, Japan relies to a higher degree than any of the countries mentioned above on private financing of tertiary education.[9] Second, student financial aid in Japan consists predominantly of loans rather than grants. The loans, provided through a quasi-governmental entity called the Japan Scholarship Foundation, are either low-interest or, in most cases, interest-free. In the case of students enrolled in public institutions, the loan amounts exceed tuition fees, leaving a small subsidy for other costs, but in the case of students attending private institutions (almost 80 percent of all tertiary students), the loans cover only a fraction of tuition fees. Thus, students or their families must pay the remainder of the fees plus all living expenses. Some scholarships are provided from non-government sources, but not in amounts sufficient to materially alter this picture. Thus, the Japanese system, characterized by minimal subsidies for living expenses and high net tuition fees for most students, provides the strongest contrast to the heavily subsidized systems of some of the continental European countries.

General Findings and Implications for Comparability

As the foregoing comments indicate, countries vary widely in the degree to which they subsidize the living expenses of tertiary students. In addition, countries vary in whether, or to what extent, they have included subsidies for student living expenses in their statistical submissions to the international agencies. An unfortunate respect in which the statistics have been consistent is that each country that included subsidies for living expenses in its EAG2 submission combined them with expenditures for educational services. This commingling was to be expected and, in fact, could not have been avoided, given the structure of the data collection forms used at the time.[10] Its effect is to undercut the validity of international comparisons of spending for tertiary education in the manner already explained.

Among the countries examined, the level of subsidies for the living expenses of tertiary students appears to be the most generous in Sweden and the Netherlands and the closest to zero in Japan. Within the range defined by these polar cases, Canada and Spain appear to be at the lower end, while the remaining countries--Australia, Austria, France, Germany, the United Kingdom, and the United States--occupy various intermediate positions. To be more specific about the relative levels of support for student living expenses, it would be necessary to take into account not only financial aid in the form of scholarships, which countries usually include in their finance statistics, but also the other types of direct and indirect subsidies that countries often omit. The latter include family allowances, subsidized lodging and meals, student loans, subsidies in kind (such as free health care and transportation), and tax benefits for students and their families.

But even with the incomplete information now available, one can appreciate the scale of the resulting distortions of comparisons of tertiary spending. For example, according to data submitted for EAG3, financial aid to tertiary students (consisting mainly of subsidies for living expenses) amounted to only about 8 percent of expenditures for tertiary institutions in France but to 58 percent of expenditures for tertiary institutions in Sweden. As a result, Sweden's tertiary expenditures would have appeared 46 percent higher relative to those of France in a comparison that included both institutional expenditures and student subsidies than in a comparison limited to only the institutional costs.[11] Because only data on institutional costs and student subsidies combined were available for EAG2, users of the EAG2 expenditure indicators could have been seriously misled regarding the countries' relative levels of support for tertiary education.

In addition, the comparability of the tertiary expenditure figures was affected adversely by inconsistent reporting of financial aid to students. For EAG2, several countries deliberately excluded from their expenditure figures the portions of financial aid identified as subsidies for student living expenses. Australia excluded the expenditures of its Austudy and Abstudy subsidy programs; the Netherlands excluded scholarships in excess of tuition fees; and the United States excluded the estimated excess of federal scholarships (Pell Grants) over tuition fees. Sweden, the United States, and possibly other countries also excluded all financial aid provided in the form of student loans. The countries that offer family allowances contingent on student status for persons of tertiary age have not counted these as education outlays (Austria, France, and probably others). No country, to our knowledge, has included student subsidies provided in the form of tax reductions. Thus, the problem of mixing together institutional expenditures and student subsidies is compounded by the inconsistent coverage of the latter in different countries' statistics.

Changes to Date and Options for Further Improvement

As part of the general restructuring of the finance data collection instrument for EAG3 and UOE, OECD took several steps to deal with the statistical problems concerning financial aid and subsidies for student living expenses. By far the most important was to separate expenditures for educational institutions from financial aid to students. The new finance data collection instruments include separate lines for reporting the amounts expended for each of these two distinct purposes by each funding source (i.e., central, regional, and local governments and private funders). As a result, the OECD now has the capability, in principle, to produce both statistics covering only expenditures for tertiary institutions and statistics on total spending (student subsidies included) for tertiary education.

These different statistics are relevant for answering different questions. If the objective is to compare the funding of institutions of tertiary education across countries or to compare total or per-student expenditures for educational services, all subsidies for student living expenses should be excluded. But if, on the other hand, the purpose is to compare total public-sector investment in tertiary education, then the student subsidy components of spending as well as the institutional components should be taken into account. Even for the latter purpose, however, it would be more informative to present figures both with and without the student subsidies, so that data users could see how the countries' relative positions depend on whether or not the subsidies are included.

The new data collection instrument also distinguishes between the grant (scholarship) and loan components of financial aid to students. Eventually, this distinction may be useful for comparing different countries' approaches to providing financial aid to students; but before that can occur, more comprehensive coverage of the various forms of direct and indirect student subsidies will have to be achieved. According to the EAG3 and UOE instructions, countries should include in their statistics such things as family allowances contingent on student status and in-kind subsidies such as free transportation, but many countries lack data on some of these items, and thus far relatively few have complied. Nevertheless, even in the short run, the distinction in the data collection forms between scholarships and loans serves the useful purpose of encouraging countries to report student loans, which many countries had omitted in the past. In this regard, the instructions stipulate that the variable to report is the *gross* amount of loans, without netting out repayments. The sum of scholarships and loans provides a measure of the aggregate flow of financial aid to persons currently in school.[12]

A problem still awaiting a solution is that of quantifying subsidies for student living expenses and distinguishing between such subsidies and the portion of financial aid provided to offset tuition fees and other costs of educational services. It is only a minor problem for countries that either charge no tuition fees or offset tuition fees with near-universal scholarships (the Netherlands and the United Kingdom), but it is a major problem for countries like the United States, in which substantial numbers of tertiary students pay large net tuition charges. In an attempt to deal with this problem, OECD attached a supplemental table to the EAG3 finance data collection form, in which countries were asked to report the shares of total financial aid accounted for by (1) tuition fees and other payments to educational institutions, (2) other purchases of education goods and services, and (3) subsidies for student living expenses. Not surprisingly, few countries were able to respond. For reasons explained earlier, the requested information cannot be derived from expenditure aggregates. More detailed analyses of student budgets, perhaps based on sample-survey data, are required. It appears that some of the countries most directly concerned do have potentially usable survey data (e.g., the United States and Japan), but thus far the necessary analyses have not been undertaken. No counterpart of the aforesaid supplemental table was included in the UOE instrument, and no other measures have been taken to deal with the issue; so for the time being, the matter remains unresolved.

In sum, the current situation is as follows: First, the restructuring of the finance statistics has eliminated the problem of countries' mixing together institutional costs with financial aid to students. The pre-EAG3 comparison errors attributable to that commingling should not recur. Second, steps have been taken to improve the comprehensiveness of the statistics on financial aid by asking countries to include student loans, contingent family allowances, subsidies in kind, and other indirect forms of aid, but how many countries will be able to respond fully is uncertain. Third, the problem of quantifying subsidies for student living expenses and separating them from subsidies for costs of educational services has yet to be addressed seriously. Although it is a problem solvable in principle, the difficulty of carrying out the requisite empirical studies in multiple countries makes any near-term resolution unlikely. Until substantial progress is made in improving both of the latter two aspects of the statistics, it will not be feasible to produce valid international comparisons of financial aid to tertiary students.

A Note on Subsidies for Upper-Secondary Students

Because the issues concerning subsidies for upper-secondary and tertiary students are parallel in many respects, it is convenient to mention the upper-secondary aspect here. Financial aid to upper-secondary students is substantial in a few countries, relatively small in most, and essentially nonexistent in others. As examples, in the Netherlands, secondary students ages 18 and over are entitled to scholarships, distributed in much the same manner as those for tertiary students; in the United Kingdom, further education students may receive discretionary maintenance grants from their LEAs; in Germany, scholarships are provided to some low-income upper-secondary students, and apprentices living away from home may receive aid for living expenses; and in both Austria and France, low-income students may receive scholarships to help pay for room and board. Financial aid is not normally provided below the tertiary level in such countries as the United States, Canada, or Japan.

Most financial aid for secondary students can be characterized as a subsidy for student living expenses, because few recipients are obliged to pay tuition fees.[13] The principal comparability problem associated with financial aid is the same at the secondary level as at the tertiary level: The inclusion of such aid in some countries' expenditure figures prior to EAG3 slightly affected comparisons of spending between countries that give smaller and larger amounts of aid to their upper-secondary students. Thus, for example, the EAG2 figures on expenditure per upper-secondary student in the Netherlands and the United Kingdom would have been somewhat inflated by the inclusion of student subsidies (other things being equal) compared with those of the United States and Canada; but the small amounts involved make this a negligible comparability problem.

However, certain developments could make the question of financial aid below the tertiary level more important. If countries began to comply with the instruction to include

BEST COPY AVAILABLE

subsidies in kind and family allowances contingent on student status in their expenditure figures, some would report fairly substantial subsidies for upper-secondary students. (This would be even more true if the scope of the data collection were expanded to take in tax subsidies.) Because of the previously mentioned structural improvements in the data collection forms, there would be little danger of confusing these subsidies with expenditures for educational services. Nevertheless, the question would have to be addressed of whether or how to take the subsidies into account in comparing total and per-student spending for secondary education across countries.

Another possible development would be a decision to count some of the compensation of dual-system apprentices or students engaged in training in alternation as a subsidy for student living expenses. As explained in Chapter 3, a case could be made, in principle, for counting a portion of that compensation as a subsidy (specifically, the portion, if any, that exceeds the value of the apprentices' contribution to production), but the issue has not had to be confronted thus far because of the lack of pertinent data from most countries and the finding from German and Austrian sample surveys of essentially no net subsidy. Nevertheless, this situation could change as other countries develop data on the costs of employer-based training.

Finally, a third development that could alter the picture would be the expansion of provisions for public subsidies to students who attend independent private schools. Such arrangements do exist in some countries but usually on a small scale (e.g., the Assisted Places Scheme in the United Kingdom, under which low-income children attending independent private schools can receive government grants). If similar provisions became more widespread, it would become necessary to allow for them more explicitly in the statistics, in much the same manner as has been done with financial aid arrangements at the tertiary level.

Notes

1. For administrative purposes, subsidies for student living expenses may flow through the institutions to students, but this does not change their character as subsidies to the students themselves. However, the entanglement of subsidies for student living expenses with subsidies for tuition fees does create problems, making it difficult, in some cases, to determine the net amounts of tuition payable by students or households.

2. The U.S. Federally Funded Research and Development Centers (FFRDCs) are independent operations, some very large, that, for historical reasons, are managed for the federal government by universities. The best known are the nuclear laboratories at Los Alamos and Livermore, managed by the University of California.

3. This estimate was derived from a special analysis of R&D expenditures prepared for EAG3, drawing on data compiled by the OECD Directorate of Science, Technology, and Industry (DSTI). The DSTI data are discussed further below.

4. For a discussion of the research coefficients and time-use surveys, as well as many other aspects of the measurement of the costs of academic research, see Irvine, Martin, and Isard (1990).

5. The reliance of OECD's Directorate of Science, Technology, and Industry (DSTI) on estimates of research expenditures based on time-use studies is documented in a DSTI compendium of national data sources and methods (OECD, 1994b).

6. Among the major data-related problems in using the OECD/DSTI data to estimate the research component of higher education expenditures are that (1) the DSTI data are different in scope from the OECD education statistics--for instance, they include research expenditures of university hospitals and certain free-standing research institutes; (2) the DSTI figures depend heavily on time-budget surveys of university faculty members, which are done differently by each country; and (3) certain major countries, notably the United States and Japan, use estimation methods incompatible with those of the other countries.

7. The Japanese abstract of education statistics, 1993 edition, indicates that expenditures for research institutes and hospitals attached to universities are included in the expenditure figures for higher education (Japan Ministry of Education, Science, and Culture, 1993, p. 157).

8. The principal exceptions are that over-age students (or students who have been enrolled for too many years) and foreign students must pay the tuition fees themselves.

9. These remarks on Japan are based on expenditure data reported for EAG3 and on a Japanese report on the financing of higher education prepared for OECD (Ichikawa, 1988). Because the latter was written some time ago, some of the information may be out of date.

10. The UOC2 questionnaire treats scholarships as a separate expenditure category but does not distinguish between scholarships used to offset tuition payments and scholarships provided to subsidize student living expenses. If a country with scholarships of the former type were to take the UOC2 data categories literally and to report scholarships along with outlays for salaries, materials, and other institutional expenditures, the result would be to double-count the tuition-offset portion of spending for scholarships.

11. France's and Sweden's total expenditures for tertiary education were 108 percent and 158 percent, respectively, of expenditures for tertiary institutions. Consequently, a comparison encompassing all expenditures (both institutional expenditures and financial aid to students) would have inflated the ratio of Sweden's expenditures relative to those of France by a factor of 158/108, or 1.46, relative to a comparison of only the institutional expenditures.

12. A more complete analysis of the financial positions of students in different countries would have to take into account the current students' obligation to repay loans at some time in the future when they are no longer students. Obviously, it would be incorrect to treat grants and loans as equivalent in any analysis of the incidence of the costs of tertiary education. Nevertheless, it remains true that the gross volume of grants and loans combined measures the amount of purchasing power transferred in a given year from a country's non-student population to its current students. The data collection instrument for EAG3 did include a line for reporting loan repayments, but because hardly any countries provided such data, the item was not retained in the UOE forms.

13. An exception is that secondary students over age 18 in the Netherlands are obliged to pay tuition fees regardless of whether they are enrolled in secondary or tertiary institutions; however, these fees are offset by scholarships in nearly all cases.

Chapter 8

STATISTICS ON USES OF EDUCATION FUNDS (EXPENDITURES BY NATURE AND RESOURCE CATEGORY)

In addition to seeking international comparisons of magnitudes of education spending, policymakers and researchers frequently ask how education funds are used ("what education money buys") in different countries. Among the specific questions of this kind to have received attention in recent years are the following:

- Do some countries allocate larger shares of expenditures than others to the basic teaching function ("instruction")?
- Is education more labor-intensive or capital-intensive in some countries than in others?
- Do countries vary significantly in the relative amounts spent on teaching and nonteaching staff?
- Are there important variations in the makeup of personnel compensation--that is, the shares accounted for by salaries, pensions, and other fringe benefits?
- Do some countries spend substantially larger fractions of their education budgets than others on administrative and overhead costs?

To answer such questions, analysts would need internationally comparable statistics showing expenditures for the different types of goods and services ("resource inputs") purchased for use by each country's educational institutions. These statistics have been characterized in the international context as breakdowns of spending by *nature* and *resource category*. "Nature" refers to the economic character of the expenditure--that is, current expenditure, capital expenditure, or expenditure for debt service. The breakdown by resource category further disaggregates current expenditures into the various types of personnel and other resources used to produce educational services.

Recognizing the potential usefulness of breakdowns of spending by nature and resource category, both OECD and UNESCO have attempted to collect the necessary statistics and to present corresponding indicators in their statistical publications. Recognizing also, however, that many countries find it difficult, if not impossible, to report uses of funds in any detail, much less according to standard international categories, both agencies have moderated their requests, asking only for limited and relatively simple expenditure breakdowns. The scope of the data collections in this area during the period covered by this study is as follows:

For the first and second editions of *Education at a Glance* (EAG1 and EAG2), OECD requested, first, a three-way classification of expenditures by nature, as outlined above, and second, a further three-way breakdown of current expenditures into compensation of teaching personnel, compensation of nonteaching personnel, and expenditures other than for compensation of personnel. The corresponding EAG1 and EAG2 finance indicators included (1) the current and capital shares of total expenditure and (2) the percentages of current expenditure accounted for by each of the aforesaid resource categories.

The Joint Questionnaire (Form UOC2), calls for separate reporting of current expenditures, capital expenditures, and a separate category called "loan transactions."[1] In addition, it provides for a breakdown of current expenditures according to the following classification of "purposes" or uses of funds:

-- Administration other than emoluments of personnel
-- Personnel emoluments--administrative staff
-- Personnel emoluments--teaching staff
-- Personnel emoluments--other personnel
-- School books and other teaching materials
-- Scholarships
-- Welfare services
-- Other current expenditures
-- Subsidies not distributed

Although these categories are more detailed than those of the INES taxonomy, they are also logically flawed--in ways explained later--and too loosely defined to yield useful international comparisons.

There seem to have been no attempts thus far to develop more detailed international statistics on the composition of education spending in different countries. For instance, there is no international classification akin to the two-dimensional function/object classification used in the United States, whereby expenditures are first categorized according to such "functions" as instruction, school administration, and operation and maintenance of buildings and then cross-categorized according to such "objects" as salaries, fringe benefits, and materials. Recently, however, OECD has elaborated its categories, adding a slightly more detailed breakdown of personnel and distinctions between salary and nonsalary compensation. These developments are discussed later in the chapter.

The main focus of the following discussion is on the comparability of expenditures disaggregated according to the OECD/INES categories in effect for EAG2. We comment first on the breakdown of spending by nature and then on the further categorization by resource category. Along the way, we touch on questions concerning the expenditure categories of Form UOC2 and possible extensions of the statistics beyond the current limited breakdowns of spending by use of funds.

Current Expenditures, Capital Expenditures, and Debt Service

The three-way categorization of expenditures by nature--current expenditures, capital expenditures, expenditures for debt service--is essential to the coherence of international comparisons of spending. Lacking such differentiation, expenditures for resources currently procured for current use (current expenditures) would be mixed together with expenditures for resources currently procured mainly for use in the future (capital expenditures) and with deferred payments for resources acquired in the past (debt service expenditures). Although the labor-intensive character of education ensures that current expenditures will predominate, a failure to distinguish consistently among the three would impair both comparisons across countries and comparisons over time.

Current and Capital Expenditures

The distinction between current and capital expenditures is reflected in almost all types of economic and financial accounts, ranging from the national income accounts to the profit and loss statements of individual businesses. Its purpose is to avoid confusing outlays for resources consumed when, or shortly after, they are purchased (e.g., the services of school teachers) with outlays for resources that continue to yield services over a long period (e.g., school buildings). Commingling of the two would lead to flawed comparisons. For example, a locality building a new school in the current year would appear, misleadingly, to be spending much more on each student's education than an otherwise identical locality that had constructed and paid for its new school building one year earlier.

The standard operational rule, reflected in most national and international financial statistics, including statistics on education finance, is that expenditures for items consumed either as they are purchased or within a year of purchase are current expenditures, whereas expenditures for items that last more than one year are capital expenditures. In the case of education, the largest component of current expenditure, by far, is spending for staff salaries and other forms of staff compensation. The other main components of current expenditure are spending for such consumables as supplies, materials, and fuel and power, and for such purchased services as contracted cleaning and maintenance, insurance, and accounting. The main capital expenditures in education are outlays for construction and major renovation of buildings, land acquisition, and instructional and other equipment. For practical reasons, many countries treat purchases of small items of equipment (below some specified cost threshold) as current outlays, even if the items are expected to last more than one year.

Some countries contrast *recurrent* and capital rather than *current* and capital expenditures, emphasizing by the term "recurrent" that the non-capital expenditures usually are made repeatedly or continuously (as in the case of staff salaries), whereas capital outlays often consist of discrete, noncontinuous ("lumpy") purchases (as in the case of building construction). Regardless of which term they use, all the countries covered by this study appear to accept the principle that the expected duration or useful life of the item purchased--specifically, whether it is less or more than one year--is the basic criterion for distinguishing between current (or recurrent) and capital spending.

Another key point on which there is general agreement is that capital expenditure refers to the value of the capital goods acquired or put in place in a given year--that is, the volume of *capital formation* in education. It follows that capital expenditure does not refer, and does not necessarily correspond to, the amount actually paid out for capital in a given year by the agencies or institutions that have acquired the capital goods. Whenever capital is financed with borrowed funds (debt financing), the value of capital acquired and current-year payments for capital are likely to differ. For example, if a municipality builds a school worth DM 20,000,000 in 1996 and finances the construction with a loan to be amortized over 15 years, only a small fraction of the building's cost (the first year's payment to amortize the loan) would appear as an outflow of funds in the municipality's 1996 budget. Nevertheless, the definition in terms of capital formation implies that the whole DM 20,000,000 cost of the school--not the 1996 payment on the loan--should be reported as a 1996 capital expenditure.[2]

Until recently, there was uncertainty and some conflict concerning a related aspect of the definition of capital expenditure: Given that the full value of the capital acquired in a given year should be counted as capital outlay, is it appropriate also to include the interest expenses incurred when the acquisition of capital is financed with borrowed funds? A few years ago, the INES project's answer seemed to be "yes." The pertinent paragraph of a set of instructions for data providers prepared in 1992 read as follows (OECD, 1992):

> In some cases it is difficult to distinguish between [current and capital] expenditure. For example, the cost of building a new school--a capital expenditure--can be borne via a loan entailing installments paid over a number of years. The expenditure on the interest of this debt would show up as a recurrent expenditure, but it is by nature a capital expenditure. These loan transactions should be included in capital expenditure.

The instrument actually used by OECD to collect data for EAG2 provided, however, for separate reporting of capital expenditures, interest on debt, and repayment of loan principal. Moreover, EAG2 itself states that the figures on current and capital shares of education spending "do not, in principle, include expenditures for debt service--i.e., payment of interest or repayment of principal on funds borrowed to finance capital outlays" (OECD, 1993). The instructions developed subsequently for EAG3 reaffirm this statement, making clear that neither interest payments nor repayments of loan principal should be considered part of capital expenditures. We can say, therefore, that a transition occurred around 1993, leading to adoption of the current position that capital expenditure and debt service (including interest) are separate components of education spending. (See the related comments, below, on expenditures for debt service.)

Because there has been general agreement about the basic accounting concepts and definitions (with the exception just noted), a foundation has existed for internationally comparable reporting of the current and capital shares of education spending. In practice, most of the countries covered by this study have used broadly compatible methods, with only relatively minor deviations, to quantify current and capital outlays. Nevertheless, significant problems affect the comparability of the current and capital expenditure statistics of a few countries. The following comments include examples from the particular countries concerned.

One problem is that, as already noted, there was ambiguity in the past as to whether countries should include any debt service outlays in figures on capital expenditures. Despite the pre-EAG2 INES instructions calling for the inclusion of interest payments, most countries in fact excluded them. They generally did so, however, not for doctrinal reasons but because the interest figures were not available. But some countries did report interest on debt as part of capital spending. Specifically, the capital outlay figures submitted for EAG2 by Austria and the Netherlands (and Australia, but only with respect to private schools) included not only the value of newly acquired capital but also the interest paid on debt incurred for earlier capital acquisitions. However, this statistical inconsistency resulted in only slight exaggeration of the capital shares of spending in these two countries. (Because the Netherlands does not rely heavily on debt financing, its interest outlays were inconsequential.)

In one instance, however, the confounding of capital and debt service expenditures has taken a more serious form. It appears that Canada's statistics on capital expenditure in public preprimary, primary, and secondary education do not represent capital formation but instead reflect the payments made by local school boards to amortize school construction loans. In other words, instead of reporting the value of capital acquired in a given year, Canada has reported the cost of financing capital acquired in earlier years. (In contrast, the Canadian figures for tertiary-level capital expenditure do represent the value of capital put in place.) Lacking longitudinal data, we cannot say whether the result has been to understate or overstate

Canada's capital outlays.[3] Nevertheless, it is clear that the Canadian capital outlay figures submitted in the past cannot be compared validly (except perhaps by accident) with those of other countries. The Canadian authorities expected to correct this problem, beginning with data submitted in 1995.

An unanticipated difficulty in quantifying current and capital outlays is the problem of "disappearing" leased capital. The problem arises where educational authorities or institutions do not produce or purchase school buildings themselves but instead rent or lease buildings from separate public building agencies. Under such arrangements, capital expenditures do not show up in the education accounts but instead are replaced by current expenditures in the form of lease payments. The resulting low capital expenditure figures cannot be compared with those from countries that finance capital by more traditional methods. Among the countries examined, this problem is the most serious in the cases of Austria and Sweden, although it may affect the statistics of other countries to lesser degrees.

Austria uses varied methods to finance educational capital, involving combinations of borrowing, leasing, direct purchases, and intergovernmental capital transfers. However, the significant feature of the Austrian system for the purposes of this discussion is the role assigned to off-budget, government-owned corporations responsible for producing or acquiring buildings for the educational (and other public) authorities. The newest and most important such entity, known as the *Bundesimmobiliengesellschaft m.b.H* (BIG), finances construction and renovation by borrowing in the private financial market and then leases buildings to the education authorities, collecting rents that cover both capital and maintenance costs. The effect on Austria's education expenditure statistics is that the rental payments are reported as part of current expenditures, while the capital outlays do not appear as education outlays. The consequence for international comparisons is that Austria's current expenditures are overstated and its capital expenditures are understated (other things being equal) compared with those of other countries.

Similarly, the local authorities (communes) responsible for primary and secondary education in Sweden do not pay for the construction of school buildings directly but instead lease the buildings from agencies responsible for providing all types of local government facilities. The lease payments cover both capital and maintenance costs. Swedish universities lease buildings from an agency that provides facilities not just for the education authorities but also for other central government departments. As a result, Sweden has reported a conspicuously small capital share of total education spending--only 3.8 percent in EAG2, as compared with the mean of 7.9 percent reported by OECD countries (OECD, 1993, p. 84). Obviously, the capital expenditure figures generated under the Austrian or Swedish lease arrangements cannot be compared meaningfully with those from countries that report the full costs of capital formation in education.

The disappearing capital problem can be viewed as less a problem concerning the measurement of capital outlay than a problem concerning the boundaries of the education sector. Given the principle that public expenditure for education includes the expenditures for educational services of all government agencies, not just those designated education agencies (see Chapter 5), it seems to follow that expenditures for the construction and maintenance of schools should be reported as such, regardless of whether the expenditures are those of an education ministry or of a separate public building agency. In the case of Swedish primary and secondary education, for example, this rule would imply that (1) the amount spent by a local public building agency for school construction should be counted as capital expenditure for education, (2) the building agency's outlays for school maintenance should be counted as current expenditure for education, and (3) the lease payments from the local education authority to the public building agency should be interpreted as internal transfers within the local government sector and, as such, netted out of education spending. The resulting statistics would be compatible with those of other countries.

Of course, there may be practical obstacles to such a solution, such as difficulty in determining precisely what fraction of a building agency's spending is attributable to schools. However, unless some such statistical restructuring is undertaken, even if it must depend on estimates, it will not be possible to include the countries with lease arrangements in comparisons of current and capital spending.

Apart from the problems just discussed, international differences in the definition of capital expenditures are very minor. Countries differ in the thresholds below which outlays for small items of equipment are reported as current expenditures, but the effect on reported current and capital shares of spending is negligible. In one country, the Netherlands, the cost of the initial equipment of a school is included in capital expenditure but the cost of replacement equipment is counted as current expenditure; however, this definitional quirk is unlikely to reduce the reported capital spending of the Netherlands by more than a small percentage. In such decentralized countries as the United States, the detailed accounting rules for differentiating capital from current expenditure may vary among the states and, at the tertiary level, among individual institutions of higher education. Also, the U.S. statistics on the finances of tertiary institutions are peculiar in that they do not include direct measures of capital formation, thus obliging the U.S. authorities to estimate capital outlays from data on additions to the value of physical facilities. Again, however, it is unlikely that such problems significantly affect international comparisons.

A more important threat to comparability is that comparisons of the current and capital shares of spending can be affected adversely by shortcomings of the education finance statistics having nothing to do with the measurement of current and capital spending per se. Gaps in the coverage of a country's expenditure statistics can result in either understated or overstated capital shares, depending on whether the omitted educational activities are of above-average or below-average capital intensity. Consider these examples:

- As explained in Chapter 7, some countries have omitted substantial portions of spending for university research from their tertiary expenditure figures. Because research is generally more capital-intensive than teaching, the likely effect is to understate the capital shares of the countries that have omitted research funds (e.g., France, the United Kingdom, and Sweden) relative to those of countries that have reported research spending comprehensively (e.g., Canada, Germany, and the United States).

- The training of apprentices in industry is another capital-intensive activity. The fact that most countries with major apprenticeship training programs have failed to report expenditures by the employers (see Chapter 3) means that the capital shares of their upper-secondary expenditures probably are understated.

- On the other hand, preprimary education is at the low end of the capital intensity scale. Consequently, the countries that have failed to report current and capital expenditures for preprimary education comprehensively (see Chapter 3) probably are overstating the capital share of spending for all levels of education combined.

Inconsistencies in classifying expenditures by level of education can also affect the comparisons of current and capital shares of spending. Consider, for example, the problem that essentially equivalent forms of vocational-technical education are classified as upper-secondary (ISCED 3) by some countries but as non-university tertiary (ISCED 5) education by others (see Chapter 4). Because vocational-technical upper-secondary education is likely to be considerably more capital-intensive than general upper-secondary education, the former countries are likely to report higher capital shares of ISCED 3 spending than the latter, simply because of how they classify activities by level. Comparisons of current and capital shares of tertiary expenditure would also be affected, but in an uncertain direction.

These interaction effects are not readily quantifiable, but to illustrate the possible magnitudes, consider the apprenticeship example. Suppose that (1) employers' expenses for training apprentices amounted to 30 percent of a country's total upper-secondary expenditures and (2) capital outlay accounted for, say, 12 percent of the employers' outlays, as compared with 8 percent of all other upper-secondary spending. Under these assumptions, the effect of adding previously omitted employer spending to the expenditure statistics would be to raise the capital share of upper-secondary expenditure by 15 percent, or from 8 percent with employer costs excluded to 9.2 percent with them included.[4] Thus statistical coverage issues having nothing to do with the current/capital distinction per se could have a significant effect on calculations of the current and capital shares of education spending.

Expenditures for Debt Service

Debt service expenditures consist of interest payments and repayments of the principal amounts borrowed to finance expenditures for education. In most countries, such borrowing occurs mainly or exclusively for the purpose of financing major capital investments, such as the construction of buildings, but in some cases funds may be borrowed (usually short-term) to support current expenditures as well. The borrowers may be either public authorities or public or private educational institutions. The lenders may be banks or other private financial institutions or, in some cases, public lending agencies.

Expenditures for debt service are presented in different ways in the internal education finance statistics of different countries and could, in principle, be presented in different ways in international statistics as well. One approach would be to include the interest portion of debt service outlay in current expenditure, the rationale being that such payments are part of the recurring expense of providing educational facilities. An alternative would be to include interest in capital expenditures, on the grounds that the obligation to pay interest is part of the cost of acquiring capital assets (this was the earlier INES view, cited above). A third option is not to include interest payments in either capital or current expenditure but instead to report them, along with repayments of principal, in a separate debt service category. A point not in dispute is that it would be improper to count repayments of loan principal as either capital or current outlay. To do so would involve double counting of capital costs--once when a capital asset is acquired, the second time as the funds borrowed to purchase the asset are repaid.

At the moment, the issue of which accounting method to use at the international level is moot, because agreement has been reached that the last of the aforementioned alternatives should be adopted. In the OECD/INES data collection systems, and now in the new UOE system, countries have been asked to report the interest and principal components of debt service expenditures as two categories under a separate debt service heading, distinct from both current and capital expenditures. Even under the former UOC2 Joint Questionnaire, which included only the aforementioned vaguely defined "loan transactions" category, the intention seemed to be that debt service expenditures should be reported separately. Note that this agreement forecloses no options for the analytical use of the resulting data. Data users would be free, for example, to count loan interest as part of the economic cost of educational services, to add interest payments to either current or capital expenditure, to present debt service outlays separately, or to omit them altogether. The inclusion of loan interest in either current or capital spending at the data collection stage would have precluded some of these options.

Turning to specific comparability problems, it has already been mentioned that not all countries conformed in the past with the instruction to separate debt service payments from current and capital expenditures. The Netherlands, Austria, and Australia included some interest payments in capital outlay, and Canada reported debt service outlays in lieu of capital expenditures for preprimary through secondary education. These deviations have been of minor significance, however (except perhaps in the Canadian case) and, in any event, are readily correctable.

A more significant problem--which may not be correctable any time soon--is that many countries have not provided, and are unable to provide, any data on their expenditures for servicing education debt. The main reason for this inability is that education debt is often consolidated with, and inseparable from, debt for other government functions. Education debt loses its separate identity when, for example, the national ministry of finance is responsible for borrowing on behalf of the central government as a whole, and the amount to be borrowed reflects the combined debt financing requirements of all ministries undertaking capital construction. Similar intermixing of education and other debt may also occur at the regional or local levels in cases where general-purpose subnational authorities are responsible for financing not only schools but also other public buildings. The result is that some countries cannot identify either the portion of accumulated public debt or the portion of debt service expenditure attributable specifically to education.

A review of the data submissions for EAG3 indicates that only three of the countries covered by this study, the Netherlands, Spain, and the United States, reported outlays for debt service. However, Canada and the United Kingdom also are known to have data on payments of interest and principal on education debt (Canada's were reported as capital expenditures, as explained earlier). The remaining countries, Austria, Australia, France, Germany, and Sweden, all would have great difficulty in distinguishing between education debt service and other public debt service, and for that reason (among others) have provided no data on debt service outlays. For the time being, therefore, the only practical option seems to be to omit interest on education debt from international comparisons of total education spending.

Assessment and Options for Improvement

The present situation with respect to the classification of education expenditures by nature can be summarized as follows: Most countries have adhered, with only minor variations, to the standard methods of defining and measuring capital and current expenditures, but there a few significant deviations. The capital leasing methods used in Austria and Sweden transform some capital outlays into current expenditures. As a result, the capital shares of these countries' expenditures are understated relative to those of other countries. Canada's practice of reporting the amortization of capital (debt service payments) instead of capital expenditures for public education below the tertiary level makes its capital outlay figures incompatible with those of the other countries. In addition, the capital and current expenditure shares of some countries are understated or overstated, not because of problems in defining current and capital spending but rather because of omissions or miscategorizations of certain categories of education spending.

Many countries have omitted all debt service outlays from their data submissions to the international agencies, most often because they have been unable to separate payments attributable to education from payments for government debt in general. The omissions make it infeasible to compare the total economic cost of education, which includes loan interest, among the OECD countries; however, the effects of omitting interest are probably minor because such payments constitute only a small percentage of total cost.

During the 1993-94 restructuring of the international education finance data collection system, OECD clarified its instructions concerning current expenditures, capital expenditures, and debt service in a way that should eliminate any residual uncertainty as to how these categories should be distinguished from one another. Specifically, OECD reconfirmed that:

- Current expenditures are expenditures for goods and services consumed during the current year. Capital expenditures are expenditures for goods (assets) Expected to last more than one year (except that purchases of small items of capital may be included in current expenditures as a matter of convenience).

- The amount to be reported as capital expenditure is the value of capital acquired or put into place in a given year (capital formation), regardless of how the capital is financed. Capital expenditure does not include any payments (interest or principal) for debt service.

- In cases where capital is financed with borrowed funds, neither interest payments nor repayments of loan principal should be counted as part of capital expenditure. Instead, the interest and principal payments should be reported in a separate debt service category.

The point that debt service expenditures should be reported separately has been reinforced by the inclusion in the new UOE finance data collection instrument of a supplemental data collection table specifically for that purpose, separate from the tables for reporting current and capital spending.

The problem of "disappearing" leased capital has not yet addressed, largely because it has only recently been recognized. In principle, the solution seems clear: Report all outlays for construction of educational facilities as capital expenditures for education regardless of (1) whether the facilities are built by the education authorities themselves, by other government agencies, or by private organizations and (2) whether the facilities are used directly by the agency that builds them or by a different agency to which they are sold, leased, or transferred. If this approach were adopted, the statistics on current and capital spending would be transparent to institutional arrangements--e.g., the existence of a specialized public building agency. Certain special provisions might be needed to account for intersectoral capital transactions--for instance, private capital expenditures for public schools and public payments for private maintenance services. Thus, although it appears that comparability could be achieved even where the methods of capital financing are unconventional, the price may be greater complexity of the data collection instrument.

Now that the instructions have been clarified, improvements in reporting debt service expenditures depend on the individual countries. Changes in reporting practices should soon eliminate commingling of debt service and capital expenditures. But whether the countries now unable to report debt service payments can fill that data gap remains doubtful. Where a country borrows to finance its public works program as a whole, there may be no satisfactory way to attribute a particular fraction of debt service expense to education. Even if there were a basis for proration, an analysis of the composition of past capital outlays would be required. Therefore, debt service outlays may have to be omitted from international expenditure and cost comparisons for the foreseeable future.

Finally, the following two comments concern possible future extensions of the statistics on capital expenditures: First, the possibility has been suggested of disaggregating capital expenditures to differentiate between buildings and equipment. Some countries already make this distinction in their internal statistics. Doing so at the international level might provide some useful additional information on the resource mix in education. However, because the capital share of spending is small compared with the current share, it would seem pointless to disaggregate capital spending unless current expenditures also were disaggregated in greater detail than they are now--a prospect that now seems remote, given the problems described in the following section.

Second, even excellent data on current and capital expenditures would not support comprehensive cost comparisons that embrace both current outlays and the value of the services derived from the accumulated stock of educational capital. Only by obtaining data on the value of the capital stock would it be possible to take into account, for example, that some countries have newer educational facilities than others, that the capital intensity of education varies, and that educational capital is relatively more expensive (e.g., because of higher land prices) in some countries than in others. These extended comparisons would require not only measurement of the stock of educational capital but also estimation of annual capital consumption (depreciation), both of which are tasks beyond the current capacities of nearly all countries. (We note, however, that a figure supposedly measuring the depreciation of education capital--but of unknown provenance and validity--has been produced and published in the United Kingdom.) Whether it might eventually be feasible to develop capital stock figures for international comparisons is uncertain, but an inquiry into the possibilities would not be unreasonable.

The Composition of Current Expenditures

For EAG1 and EAG2, OECD specified a seemingly simple breakdown of current expenditures into outlays for three types of educational resources: teaching personnel, nonteaching personnel, and other (nonpersonnel) goods and services. But simplicity notwithstanding, many countries have found it difficult to separate the three categories, and the responses have been inconsistent. Both the division between personnel compensation and spending for nonpersonnel resources and the distinction between teaching and nonteaching personnel have proved problematic, raising doubts about whether valid comparisons are currently possible.

The Distinction Between Personnel and Nonpersonnel Expenditures

In principle, the distinction between personnel and nonpersonnel spending is straightforward. The personnel category should include all salaries, allowances, fringe benefits, etc. paid to people who work for providers of educational services, while the nonpersonnel category should include current outlays for materials, supplies, fuel and power, and the like, plus payments for certain types of services obtained from external vendors. But several obstacles to applying this principle undercut comparisons of the personnel and nonpersonnel shares of spending.

One problem is that some countries' figures on compensation of personnel do not cover expenditures for all types of personnel. Compensation for what might be termed the core categories of education staff (teachers, school administrators, etc.) are always included, but payments to certain types of support staff or ancillary services staff sometimes are omitted. The basis for exclusion is less often occupation per se than the identity of the employer and/or the legal form of employment. Consider the following cases:

- In the Netherlands, only payments to staff paid by the national education ministry were reported as personnel compensation for EAG2. Expenditures for persons employed by municipalities, mainly to clean and maintain buildings and provide certain ancillary services, were reported as "other" (nonpersonnel) expenditures.
- In several countries where general-purpose local authorities are responsible for building operation and maintenance and certain administrative support functions, both the labor and the materials portions of expenditures for these functions are included under "other current expenditures." Only the salaries of teachers and related pedagogical and administrative staff are shown as personnel compensation.
- In Austria, the compensation of regular employees of tertiary institutions is reported as personnel compensation, but payments to individuals employed through personal services contracts or paid by the lesson are treated as nonpersonnel outlays.

The result in each such case is to understate spending for personnel and to overstate spending for other goods and services, as compared with countries that define personnel compensation more comprehensively.

A second problem concerns contracting with outside suppliers for support and ancillary services. The educational authorities or institutions of some countries obtain through contracts the same kinds of services as the authorities or institutions of other countries produce with their own employees. Contracted services may include such things as upkeep of buildings, operation of student residences and food service facilities, and student transportation. Payments to outside contractors invariably are reported as nonpersonnel outlays, whereas payments to employees usually are reported (with the exceptions mentioned above) as personnel compensation. In an international comparison, it will seem that a country that relies heavily on contracting spends a smaller share of its education budget on personnel (other things being equal) than a country whose education agencies produce support services themselves; but the appearance may be deceptive. In reality, education may be equally labor-intensive under both modes of service provision. The only real difference may be in the legal mechanism--employment or contracting--through which services are obtained.

Among the countries examined, contracting with private firms for support services appears to be particularly common in Germany, Austria, and the United Kingdom, although it is also used to varying degrees in other countries. Also relevant in this regard are the aforementioned Austrian and Swedish practices of procuring both educational facilities and the associated maintenance services through lease arrangements. Even though the lessors may be public agencies, the effect on the current expenditure statistics is the same as if they were private firms: Outlays that would consist otherwise mainly of payments to maintenance personnel employed by education agencies are transformed instead into lease payments, and hence into nonpersonnel expenditures.

A third problem that affected the breakdowns of current expenditures in EAG1 and EAG2 is that the expenditure totals that some countries divided between the personnel and nonpersonnel categories included extraneous items, not properly includable in a breakdown of expenditures for educational services--most prominently, amounts spent for scholarships, other financial aid to students, and subsidies to private institutions. The inclusion of these items reflected a logical flaw in the data collection systems--the failure to differentiate between final expenditures (payments for educational resources) and financial transfers. These logical shortcomings are examined in Chapter 9. For the present purpose, suffice it to say that the "other current expenditure" figures of some countries were inflated by the inappropriate inclusion of scholarships and other transfer payments. The result was to exaggerate the nonpersonnel component and to understate the personnel component of spending for education.

The aforementioned problems had gone largely unaddressed prior to the recent restructuring of the OECD statistics. The INES instructions did not stipulate that personnel compensation should include all forms of compensation for all types of personnel; did not specify how expenditures for services purchased under contracts should be reported; and did not clarify the distinction between payments for educational resources and other financial flows. Lacking these elements, the framework did not support valid comparisons of personnel and nonpersonnel shares of education spending.

The situation with respect to the UOC2 Joint Questionnaire was considerably worse. In addition to categories for reporting personnel costs, the questionnaire included not one but two categories for reporting miscellaneous nonpersonnel expenditures--one labeled "other current expenditure," the other, "administration other than emoluments of personnel." The latter category was not defined. It is difficult to see how any reasonable definition of "administration" could include a large nonpersonnel component, yet that is what some countries reported. "Other current expenditure" was said to include spending for maintenance and operation of buildings, even though much of that spending normally consists of compensation of personnel. In effect, each country was left to decide on its own which types of expenses to include in which category. In addition, countries were asked to report outlays for student welfare services under a separate heading, although these, like expenditures for teaching, consist of both personnel and nonpersonnel outlays. Countries were also asked to include expenditures for scholarships and unspecified subsidies in the same breakdown as expenditures for personnel, notwithstanding that scholarships and subsidies are not payments for resources but rather transfer payments, which the recipients ultimately spend for educational or ancillary services. Because of these serious conceptual flaws, the UOC2 structure could not have yielded comparable statistics or supported meaningful comparisons of uses of education funds.

Teaching and Nonteaching Personnel

Ideally, comparisons of the teaching and nonteaching components of personnel compensation would shed light on international differences in approaches to staffing and organizing the schools. A relatively high ratio of nonteacher to teacher compensation might indicate, for example, that the country in question spends an above-average share of its education budget on administrative and support services, and hence a below-average share on the resources used directly to instruct students. But in reality, such comparisons are fraught with comparability problems, raising doubts that the reported differences in the composition of spending for personnel give a true picture of inter-country variations in how the schools are staffed.

One problem with the decomposition of compensation into teaching and nonteaching components is that countries disagree about how to distinguish between teaching and nonteaching personnel. A few define the teaching personnel category narrowly, limiting it to persons engaged in classroom teaching; but most countries understand the category to include school heads (principals, directors, etc.) and assistant heads, regardless of whether or to what extent such persons perform teaching functions. Some countries stretch the definition even further, so that it covers such personnel as counselors, psychologists, librarians, and curriculum developers, and even administrators and specialists who are qualified to teach but who work in central administrative and support offices. Naturally, the broader a country's definition, the larger the percentage of the country's personnel costs supposedly accounted for by compensation of teaching staff.

In principle, the OECD/INES project has leaned from the outset in favor of the narrower definition of teaching personnel. For instance, according to the definitions provided in the 1991 INES *Handbook* (subsequently repeated in the instructions to data providers for EAG1 through EAG3), the teaching personnel category excludes "former teachers who no longer have active teaching duties," "people who provide services other than formal instruction," and "principals without teaching responsibilities." But most countries have not followed these directions in their data submissions. Instead, many countries have given OECD the same expenditure breakdowns as they use internally, which, more often than not, reflect a broad rather than a narrow definition of teaching personnel. Certain other countries, finding it impossible to disaggregate spending as specified, have chosen to report only total spending for all types of personnel combined.

The UOC2 Joint Questionnaire asked countries to provide separate figures on emoluments of teaching, administrative, and other staff but provided no definitions of the three categories. Countries were not told whether to classify school heads as teachers or administrators or whether to count such professionals as counselors, psychologists, and librarians as teachers or as "other" personnel. Each country was left to decide these matters for itself. Moreover, some countries, following the UOC2 guidelines, probably reported the personnel portions of building operation and maintenance expenditures and student welfare expenditures under "other current expenditure" and "welfare services," respectively, thereby sharply reducing the amounts reported as compensation of nonteaching personnel. Under these circumstances, there was virtually no prospect of deriving any internationally comparable breakdowns of personnel compensation from the UOC2 submissions.

While the problem of distinguishing consistently between teaching and nonteaching personnel arises at all levels of education, it is particularly acute at the lowest and highest levels--preprimary and tertiary, respectively. At the preprimary level, the question is which care-givers for young children should be classified as teaching personnel. Depending on the country and type of institution, these care-givers may range from fully trained, officially certified teachers to young secondary school graduates with no special preparation for early childhood education. It is not evident how the teaching/nonteaching dichotomy should be applied or whether it can be applied meaningfully to preprimary schooling.

At the tertiary level, the teaching/nonteaching distinction does not necessarily reflect the real structure of institutional work forces. Some personnel with academic rank work primarily or exclusively as administrators or researchers. Personnel not necessarily classified as teaching staff may perform teaching-related functions (laboratory assistants, technicians, graders of examinations). In some countries, teaching functions are performed by persons who are themselves students (postgraduates) and who may not be covered by the personnel statistics. Thus it is not always clear, even in principle, how one should construct or interpret statistics on the composition of tertiary staffing and compensation.

Of the countries covered by this study, the United States comes closest to limiting the category of primary and secondary teaching personnel to classroom teachers, but even the U.S.

figures on teacher compensation may include some compensation of nonteaching personnel who support the instructional function. In the cases of Australia, Canada, and the United Kingdom, the teaching staff category includes school heads and assistant heads but generally excludes the other types of professionals mentioned earlier. Most European countries include not only school heads and assistant heads but also various kinds of professional, pedagogical, and administrative personnel (the exact categories varying by country) in their broadly defined teaching personnel categories.

These differences in categorization are not solely due to differences in definitions and statistical practices. They also reflect, in part, the underlying reality that the functions of teachers are less sharply differentiated from other types of professional staff in some countries than in others. In the majority of countries, school heads and assistant heads normally spend part of their time teaching. In France, Germany, and Austria, for example, regulations specify the number of hours per week that a school head is expected to teach, given the size of his or her school. Only the heads of large schools are freed from teaching duties. The only way to differentiate statistically between teachers and school-level administrators in these cases would be to treat school heads as part-time teachers and part-time administrators and to divide their compensation accordingly (on the basis of full-time-equivalency) between the teaching and nonteaching categories.

A related point is that some countries expect their teachers to perform functions that are performed in other countries by specialized nonteaching staff. Some German and Austrian teachers, for example, carry out such nonteaching functions as counseling students, operating school libraries, maintaining science laboratories, and procuring instructional materials for their schools. To make time for such duties, these teachers are assigned to teach fewer than the standard number of hours or lessons per week. Equivalent nonteaching functions often are performed by persons other than teachers in such countries as the United States. Given these differences, it is hard to see how the teaching and nonteaching shares of personnel compensation could be compared accurately without apportioning personnel costs on the basis of functions performed--an analytical task well beyond the capabilities of current statistical systems.

Comparisons of the teaching and nonteaching shares of personnel compensation also are adversely affected by definitional differences that have nothing to do with personnel categories as such. One such difference is that nonteaching functions considered to belong to the education sector in some countries fall outside it in other countries (see Chapter 6). In the United States, for example, local education agencies generally are responsible for transporting students to and from school. To that end, they employ bus drivers and mechanics, who are counted as nonteaching personnel of the education sector. In many other countries, the transportation function is performed by noneducation agencies or private contractors, and the compensation of the transport workers does not appear in education accounts. Other things being equal, it will appear that the nonteaching share of personnel compensation is higher in the United States than in these other countries. Similarly, countries that include the personnel (and other) costs of student health services, food services, psychological counseling, etc. in their education budgets will appear to have higher nonteaching shares of personnel compensation than countries that entrust these services to noneducation agencies. In principle, such variations in the scope of the education sector's responsibilities would have to be taken into account to make comparisons of staff compensation meaningful.

The practice of obtaining support services through contracts with outside suppliers also undercuts comparisons of the teaching and nonteaching shares of personnel compensation. For example, when school buildings are provided under leases that cover maintenance costs, the compensation of maintenance personnel does not appear as a personnel cost in the education accounts. As a result, the share of compensation accounted for by nonteaching personnel is understated, and the apparent share of teaching personnel is correspondingly amplified. For the same reason, a country that contracts with private firms to clean and maintain its schools will appear to be spending a smaller share of its personnel budget on nonteaching staff than a country that relies on employees of education agencies to perform the same function. Whatever real differences exist in the composition of the education work force are likely to be obscured by the differences in administrative and contractual arrangements.

In practice, the problems discussed here manifest themselves more as nonreporting than as reporting of inconsistent data. EAG2 presents statistics on the compensation of teaching and nonteaching personnel for only four of the countries covered by this study--Canada, Australia, the United Kingdom, and Austria. For most of the remaining countries, EAG2 distinguishes only between personnel and nonpersonnel costs, with no breakdown of the former by type of personnel. For Sweden and the United States, it does not even distinguish between personnel and nonpersonnel expenditures. Although there have been some changes in this regard for EAG3 (for instance, the United States has provided a breakdown of current spending), there has been only modest net improvement.

The reasons for nonresponse vary by country. Some past nonresponses may have stemmed from difficulty in interpreting the categories of staff compensation, especially those specified in UOC2. In other cases, countries unable to respond as requested may have chosen not to respond at all. Of greater long-run significance, however, is the problem that some countries seem unequipped to disaggregate personnel compensation by staff function, regardless of how the functional categories are defined. In the case of France, for example, the statistics on personnel and personnel compensation are organized by status rather than by function. This means that individuals with the official status of teachers--persons qualified as teachers and paid according to the teacher salary scale--will be counted as teaching staff even if they have taken on full-time administrative responsibilities or other nonteaching jobs. In Germany, the key distinction is between civil servants and non-civil servants. Although most teachers are civil servants and most nonprofessional support staff are not, the civil service category also includes many administrators and other professionals who no longer perform (or never performed) direct teaching functions. Similar obstacles to classification exist, with variations, in Austria, the Netherlands, Spain, and Sweden. It does not follow that nothing can be done to circumvent these limitations of the financial data systems (see below), but efforts to do so could prove time-consuming and costly. What does seem clear is that many countries will never be able to disaggregate personnel costs in a manner useful for international comparisons if they continue to rely exclusively on the standard data sources used for internal statistical purposes.

Assessment and Options for Improvement

Neither the statistics developed thus far by the INES project nor those derived from the UOC2 Joint Questionnaire provide a sound basis for international comparisons of the composition of current expenditures. Both the distinction between personnel and nonpersonnel costs and that between teaching and nonteaching personnel are affected adversely by the following practices: (1) the misreporting of the full costs of certain support and ancillary services--including the personnel portions thereof--as nonpersonnel expenditures, (2) the classification of outlays for contracted services as nonpersonnel expenditures, even though they may be largely payments for labor, (3) the omission from some countries' statistics of expenditures for support services by noneducation agencies, and (4) the commingling with nonpersonnel expenditures of various transfer payments and subsidies. In addition, figures on the teaching and nonteaching shares of expenditure for staff compensation are often missing or, when not missing, distorted by differences in national definitions of teaching and nonteaching personnel.

It is not possible to quantify the deviations from comparability of the statistics prepared by individual countries. Quantification would require more information than is now available on the staff structures and compensation systems of the countries concerned. However, we can illustrate the scale of the potential errors with some hypothetical but realistic numerical values. Consider, first, the division between total personnel compensation and nonpersonnel outlays. For primary and secondary education, the "true" ratio between the two probably is in the range from 75-25 to 85-15. Consequently, the misreporting of even a relatively small share (say, one-tenth) of personnel outlay as nonpersonnel spending could drastically shift the position of the country concerned within that range. For example, if outlays for operation and maintenance staff amounting to only 5 percent of total spending were misreported as nonpersonnel spending (e.g., because of contractual arrangements), a country's personnel-to-nonpersonnel ratio might be reported as 75-25 instead of 80-20, placing the country at one end of the range rather than in the middle. Similarly, at the tertiary level, where the real personnel-to-nonpersonnel ratio may average something like 70-30, the inappropriate inclusion of student subsidies could change a country's statistics drastically. For instance, the addition to the nonpersonnel category of scholarships equal to 20 percent of current spending would transform a true ratio of 70-30 to an apparent ratio of 58-42. In fact, several countries reported implausibly high ratios like the latter in their statistics for EAG2.

As to the teaching and nonteaching shares of personnel compensation, the true ratio between the two, based on the narrow definition of teaching staff, is likely to fall between 60-40 and 80-20. Assume that a typical country has a ratio of 70-30 and that one-third of the

BEST COPY AVAILABLE

nonteaching part (10 percentage points) consists of the compensation of school heads and other professional personnel. The effect of classifying these school heads and other professionals as teaching rather than nonteaching personnel (contrary to the INES instructions) would be to shift the ratio from 70-30 to 80-20, or, once again, from the middle to one extreme of the range. Thus, there is little doubt that the types of comparability problems outlined in this section can cause large enough distortions to invalidate international comparisons of the composition of current expenditures.

OECD has sought to improve the situation by restructuring the pertinent statistical categories and developing clearer and more detailed instructions for data providers. Specifically, the following changes were introduced for EAG3 and subsequently incorporated into the UOE finance data collection instrument:

First, final expenditures for the resources used to produce educational services now are sharply differentiated from transfer payments and subsidies (see Chapter 9). Both the structure of the data tables and the accompanying instructions establish unmistakably that only the final expenditures for educational resources are to be reflected in the breakdown of spending by uses of education funds.

Second, the two-way distinction between teaching and nonteaching personnel has been replaced by the following three-way distinction:

1. Teachers (including only full-time classroom teachers and the full-time-equivalent of part-time classroom teachers)
2. Other pedagogical, administrative and professional personnel (including principals, headmasters, supervisors, counselors, psychologists, librarians, etc.)
3. Support personnel (including clerical personnel, building and maintenance personnel, food service workers, etc.).

In addition, subtotals have been added to accommodate countries unable to provide the full three-way breakdown of personnel costs. This restructuring was intended to alleviate, or at least to reveal, inconsistencies in national definitions of teaching and nonteaching personnel.

Third, a new category, "expenditures for contracted and purchased services," has been added to the breakdown of current expenditures. The hope is that separate reporting of outlays of this type will improve comparisons between countries that rely to different degrees on contracting for ancillary and support services.

Thus far, the effects of the changes have been mixed. The new sharp distinction between final expenditures and transfers has had the intended effect. With payments for educational resources cleanly separated from transfers, future analyses of the composition of spending are unlikely to be distorted by the unwarranted inclusion of such things as scholarships and subsidies. However, the introduction of the revised personnel categories and the new contracted services category has not yet had the hoped-for results. For EAG3, most countries still were unable to disaggregate their spending figures in the prescribed manner. There was almost no increase between EAG2 and EAG3 in the number of countries able to separate personnel compensation into compensation of teaching and nonteaching staff. Thus, the goal of being able to compare the educational resource mixes of different countries remains elusive.

The prospects for improving this aspect of the expenditure statistics are uncertain. At this stage, little more can be accomplished by continuing to refine the international data collection instruments and definitions. The key concepts and distinctions already have been clarified, and the main sources of previous confusion have been eliminated. The focus now shifts to what is feasible for the individual countries: Is it likely that enough countries will eventually submit usable data to make an international comparison of the composition of current spending worthwhile?

Based on what has been learned to date, it seems that the answer will be "no" if countries continue to rely only on standard sources of expenditure data. The regular education finance and personnel statistics of such countries as France, Germany, Spain, and Sweden will not support even the distinction between compensation of teachers and compensation of nonteaching personnel, much less the more detailed distinctions introduced for EAG3. It appears, however, that some countries have untapped data sources that could be used to generate better data on the composition of spending for personnel. France, for example, has individual-level personnel data files covering all teachers and other professional educators in the country (or at least the large majority who are national civil servants). In principle, these files could be used to sort personnel into appropriate categories and to aggregate their salaries. Similarly, Sweden has a national register of teaching personnel, which could be used to categorize staff and apportion staff costs among the pertinent categories. What we do not know is whether these data sources are accessible for statistical purposes (for instance, there may be legal obstacles) and whether countries would be willing to carry out the necessary data analysis. If not, the present data gaps are likely to persist.

Finally, the following remarks concern several related aspects of current and potential future international statistics:

In addition to the recent changes in data categories mentioned above, the UOE data collection instrument includes, on an experimental basis, a breakdown of expenditure for personnel by type of compensation. Specifically, countries are asked to distinguish among expenditures for salaries, retirement programs (pensions), and other nonsalary compensation. In addition to allowing comparisons of the makeup of personnel compensation, which is policy-relevant in its own right, such data could help to resolve the difficult comparability issues concerning pension and fringe benefit costs, discussed earlier in Chapter 6.

Considering how difficult it has been to obtain any comparable breakdowns of spending by type of personnel, it may seem odd even to mention further disaggregation. We note, however, that breakdowns of spending according to the present categories cannot address policymakers' concerns about the administrative and overhead shares of the total cost of education. The undefined UOC2 "administration" categories were unsuitable for that purpose. A sounder approach presumably would have to rest on a distinction between administrative and other personnel. OECD may want to include on its data development agenda an assessment of the feasibility of such a distinction.

The last point concerns coordination between the expenditure statistics and the statistics on education personnel. Past efforts to compare countries with respect to numbers of teaching and nonteaching personnel (and ratios of staff to students) were impeded by the same definitional inconsistencies as affected the statistics on staff compensation. Now, the new UOE data collection instrument asks countries to report numbers of personnel according to the same three revised categories as appear in the finance questionnaire. In addition, OECD has developed a separate survey of teaching personnel covering, among other things, numbers of teachers and average teacher salary. The existence of these parallel data collection efforts raises issues of consistency but may also offer an opportunity to improve the statistics on personnel compensation. It may be feasible, for example, to combine data on numbers of teachers and data on average teacher salary, and thus to produce an independent estimate (i.e., separate from the finance data collection) of the cost of teacher compensation. Doing so could help to circumvent some of the limitations of the current expenditure statistics. At the least, it would provide a valuable check on the validity of the expenditure figures.

Notes

1. The UOC category of "loan transactions" is related to, but not equivalent to, expenditures for debt service. It seems to embrace both loans made to education authorities to finance capital construction (and for other purposes) and loans to students to cover educational expenses. Mixing the two together makes little sense, because the two transactions involve entirely different classes of lenders and borrowers.

2. In a steady state situation, where both the rate of capital construction and the degree of reliance on debt financing are more or less constant over time, it is possible that debt service payments could be approximately equal to the volume of capital formation in each period. Such synchronization is unlikely, however, given the typically discontinuous nature of capital investments and the sensitivity of the demand for educational capital to changes in demographic and other factors.

3. Whether current debt service payments on account of capital overstate or understate current capital formation in education depends on whether the average rate of debt-financed capital formation in the past was greater than or less than, respectively, the rate in the current period.

4. Under the stated assumptions, the average capital share of all upper-secondary expenditures, including employers' expenditures for apprenticeship, would be .70 x .08 + .30 x .12, or .092, which would be 15 percent greater than the capital share (.08) of only the school-based portion of upper-secondary spending.

Chapter 9

EDUCATION EXPENDITURES BY SOURCE OF FUNDS

In addition to providing information on expenditure levels, most national and international compilations of education statistics present information on the sources of education funds. OECD's *Education at a Glance* (EAG2) compares countries with respect to shares of funds derived from public and private sources and, within the public sector, from central, regional, and local governments. This information bears directly on a number of important, increasingly salient issues of education and social policy, among them issues of decentralization, privatization, fiscal equity, and student choice. But before discussing these issues, we need to distinguish carefully between two different senses in which the term "funding source" is used.

"Sources" refers, depending on the context, either to the entities responsible for *generating* education funds or to those responsible for *expending* the funds to produce or purchase educational services. The two are called initial funding sources and final funding sources, respectively. Breakdowns of spending by initial source and final source of funds can--and sometimes do--differ sharply. In the United States, for example, the responsibility for generating public funds for public preprimary through secondary schools was divided in 1992-93 in proportions of roughly 7, 47, and 46 percent, respectively, among federal, state, and local authorities, but the responsibility for expending the funds to operate schools was borne almost entirely--over 95 percent--by the local education agencies.[1] In the United Kingdom, local education agencies (LEAs) account for the great bulk of final public expenditures for public primary and secondary education, but more than three-fourths of LEA funds originate from the central government. The differences between the initial and final shares of spending are accounted for by financial transfers among the parties concerned--in the U.S. case, from federal and state governments to local school districts; in the UK case, from the central government to local authorities. Statistical breakdowns by both initial source (expenditure before transfers) and final source (expenditure after transfers) are needed to give a complete picture of the division of financial responsibilities in each country.

The breakdowns of spending by initial and final source are relevant to different sets of policy and research issues. To begin, information on the division of responsibility for generating education funds between the public and private sectors is relevant to the broad social policy question of how the costs of education should be split between the individuals who benefit (or their families) and society as a whole. This issue is germane at all levels of education but is particularly important in connection with the beginning and end stages--preprimary and tertiary education, respectively--where the system of dominant public-sector funding is less well established and more controversial than in primary-secondary education. An international comparison of the shares of funding that originate in the public and private sectors (by level and type of education) brings out the diverse choices that countries have made in this regard.

Information on the public and private shares of funding also relates to debates carried on in some countries over whether, or to what degree, the costs of educating the future work force should be borne by the enterprises that will eventually employ the persons being trained. Specifically, an international comparison focused on sources of funds for secondary and tertiary education could help to illuminate the sharp differences in this aspect of policy, especially between countries that do and do not rely heavily on apprenticeship systems and other modes of employer-based training.

Comparative statistics on the shares of final (after transfer) expenditures emanating from public authorities and private households relate to another fundamental policy issue: the appropriate scope of individual choice and "consumer sovereignty" in education. A system in which individual households are the final purchasers of educational services is likely to afford greater opportunity for the expression of individual preferences than one in which the government is the dominant or exclusive purchaser, and hence the determiner of what types of institutions will exist and what types of services will be offered. On the other hand, the former system also raises more concerns about access to education and the distribution of educational opportunities. Statistics on the composition of final spending by source could highlight the different choices countries have made in this regard.

Indicators of the distributions of public-sector funding responsibilities among central, regional, and local governments--both before and after transfers--relate to the active discussions under way in many countries over centralization versus decentralization of control over education. Although a dominant central government role in generating education funds does not necessarily or automatically translate into central government control of the substance or governance of education, it does provide powerful levers with which control could be exerted. In particular, a large central-government role as the final expender of education funds--as, for example, in countries where the central government itself employs the nation's teachers--is very likely to be accompanied by strong central involvement in other aspects of the educational process.

In addition, the division of fiscal responsibility by level of government has important implications for equity in the distribution of educational resources. Decentralization of the responsibility for generating funds to regional or local authorities opens up at least the possibility of substantial disparities in spending per student among jurisdictions with different capacities or inclinations to support the schools. Although such disparities are not unheard of in centralized systems, the opportunities for them to occur are more limited. In addition, the public/private division of financial responsibilities has implications for a different aspect of equity--the distribution of educational opportunities among different socioeconomic (and perhaps ethnic) groups within a country. Other things being equal, the greater the reliance on private ability and willingness to pay, the greater the likelihood that intergroup differences in access to education will emerge.

Recognizing the importance of such issues, OECD placed heavy emphasis during the recent restructuring of its education finance data collection instrument on improving the statistics on sources and flows of funds. The result was a complete redesign of the pertinent portions of the earlier INES and UOC2 questionnaires. This chapter explains the conceptual and practical problems that made extensive restructuring necessary and outlines the logic of the new approach.

Problems in Comparing Sources of Funds

Prior to the INES project, international statistics on sources of education funds were severely limited in both scope and quality. Although the Joint Questionnaire (Form UOC2) includes a table for itemizing expenditures by source of funds, its treatment of funding sources is inadequate in two respects: First, UOC2 covers only initial sources of funds; it collects no data on final (after transfer) expenditures. The limitation to initial sources means that only an incomplete, one-sided picture of the distribution of fiscal responsibilities in each country can be constructed. Second, the requested breakdown of expenditure by source pertains only to expenditures for all levels of education combined. Because the mix of funding sources often varies greatly from one level of education to another, statistics that aggregate the levels cannot

406

provide a valid picture of how a country's educational institutions are financed. For these reasons, the UOC2 framework did not lend itself to construction of useful indicators of sources of education funds.

The INES project attempted from the start to provide more complete information on funding sources by, first, requesting data on both initial and final sources of funds and, second, asking countries to provide breakdowns by source for each level of education separately. Specifically, for EAG1 and EAG2, countries were asked to report both before-transfer and after-transfer expenditures from the following sources:

- Public sources
  - Central government
  - Regional government
  - Local government
  - Other [deleted for EAG2]
  - International [added for EAG2]

- Private sources
  - Households
  - Other (firms, religious bodies, and other nonprofit organizations)

Ideally, this structure should have made it possible for OECD to obtain comparable information on sources of funds from all the participating countries and to produce valid international indicators. But in this area, as in other parts of its education finance data collection, INES proceeded initially without suitable definitions of the desired expenditure categories or clear, operational instructions for the data providers. Perhaps it was thought that the concepts and definitions were simple and self-evident, but this proved not to be so. Partly because of inadequate guidelines, internationally comparable statistics were not obtained.

The most serious difficulty was that data providers were uncertain about how to interpret the concepts of before-transfer and after-transfer expenditures and how to relate them

BEST COPY AVAILABLE

to national accounting categories. As a result, countries responded inconsistently or, in some instances, chose not to provide the before-transfer figures, the after-transfer figures, or both. Countries also encountered major problems in (1) taking into account flows of general-purpose funds from central or regional authorities to the lower-level general-purpose governments (e.g., municipalities) responsible for education, (2) sorting out flows of education funds to and from households, and (3) distinguishing clearly among the different types of public and private funders. All these problems were compounded by gaps in national education finance data, especially in the area of private funding (a problem discussed in Chapter 5). The details of these problems and the consequences for expenditure comparisons are laid out below.

Defining Initial and Final (Before- and After-Transfer) Expenditures

Far from being straightforward or intuitive, the concepts of before-transfer and after-transfer expenditures have proven troublesome. In the absence of precise international definitions, countries were left to devise operational definitions of their own. The result was that countries arrived at inconsistent, sometimes conflicting, interpretations of the two concepts and provided incompatible sets of figures to OECD. Some countries avoided the ambiguous aspects of the data collection by omitting one or both breakdowns of spending.

During the period when data were being collected for EAG1 and EAG2, two different and incompatible interpretations of the after-transfer concept coexisted, each adhered to by a different group of countries. One definition, based on what we call the *final purchaser* concept, is that after-transfer expenditures should be categorized according to the source of demand for educational services--in other words, the final "customer" of the educational institution. Thus, for example, if the central government gives scholarships to students, which the students then use to pay tuition fees to universities, the students would be the direct

408

customers or final purchasers, and the tuition fees would be classified as after-transfer expenditures of students or households. However, if the same government gave a direct grant to a university or paid the university for services provided under a contract (e.g., a research project), then the government would be the final purchaser, and the government payments would be classified as after-transfer expenditures of the central government.

The alternative definition, reflecting what we refer to as the *service provider* concept, is that after-transfer expenditures should be categorized according to the public or private character of the institutions that supply (produce) educational services. Referring to the foregoing example, this formulation implies that a university's revenue from both tuition fees and government grants or contracts would be classified as public after-transfer expenditures if the university in question were a public institution, and as private after-transfer expenditures if the university were a private institution. The two definitions conflict. They lead to different breakdowns of expenditure by source in all cases where significant fractions of education funds are either provided by private parties or expended by or for private institutions. We found that some countries' had based their INES data submissions on one definition, and some on the other, resulting in noncomparable breakdowns of spending by source of funds.

A closely related definitional problem is that some national data providers were uncertain, in the absence of detailed definitions, about how to distinguish between transfer payments and final outlays for educational services. The distinction is essential for distinguishing between the initial and final sources of funds and for avoiding double counting in cases where transfers occur. We found, for example, that certain countries had construed some or all government payments to universities as transfer payments (on the grounds that the universities are fiscally autonomous public agencies), and some had included even tuition fees in the transfer category. Others had counted all such flows as final expenditures (payments from customers) for educational services. Naturally, these conflicting interpretations yielded noncomparable data.

These definitional issues were resolved in time for OECD's data collection (in early 1994) for the third edition of *Education at a Glance*. The key decisions were that, first, expenditures should be categorized by final source according to the final purchaser (demand-oriented) definition, and second, the breakdown of spending by type of service provider--that is, whether the educational institution is public or private--should be considered a separate dimension of the classification of expenditures, logically distinct from the classification by source of funds. The details and implications of these decisions are explained later.

Education Finance in Relation to General Government Finance

An important characteristic of some national education finance systems is that the subnational authorities responsible for financing or operating schools are *general-purpose* regional or local governments that receive substantial portions of their revenue (income) in the form of *general-purpose* transfer payments from higher-level governments. A general-purpose government is one that is responsible not only for education but also for a range of other public services. For instance, the municipal governments of some countries not only administer local schools but also organize health and welfare services, build and maintain roads, furnish police and fire protection, and provide public transportation. General-purpose transfer payments take two main forms: intergovernmental grants and shared revenues. General-purpose intergovernmental grants are financial transfers from higher-level to lower-level public authorities (central to regional, regional to local, central to local) that are not designated for specific functions such as education but rather are provided to support the whole range of functions for which the lower-level governments are responsible. Shared revenues are funds raised by a higher-level authority, usually through taxes imposed at uniform rates throughout its territory, but apportioned among lower-level jurisdictions according to a specified formula or rules. An example is a national value-add tax (VAT), some specified percentage of which is made available to the region in which the revenue originates. Another is a national or state income or gross-proceeds tax, shares of which are allocated to regions or localities according to a formula based on population and other factors.

Where general-purpose intergovernmental transfers exist in substantial amounts, it becomes difficult or impossible to say what share of education funding has originated at each level of government. Suppose, for example, that a local authority spends 100 million francs total, including 40 million for education and 60 million for all other functions, and receives 70 percent (70 million) of its 100 million franc budget as a general-purpose transfer from the central government. How much of the 40 million in education spending is financed from the general-purpose grant? One might say, of course, that the same 70 percent share of education spending as of total local spending (i.e., 28 million) consists of central government funds, but one could also claim, with no greater or lesser validity, that all education spending is centrally funded (i.e., 40 million of the 70 million in general aid is devoted to education) or that only 25 percent is centrally funded (i.e., only 10 million in general aid is used for education; the rest is spent on other functions). In general, there is no non-arbitrary "correct" answer. Consequently, countries with general-purpose financing arrangements have been uncertain about how to quantify the initial (before transfer) contributions of central, regional, and local governments. Faced with this problem, some countries have chosen to ignore general-purpose transfers, meaning, in effect, that they have treated general-purpose aid as if it were revenue originating with the aid recipients. Other countries have avoided the problem by not breaking down their expenditures by initial source of funds.

Flows to and from Households and Other Private Entities

Countries have encountered particular difficulties in sorting out flows of funds to, from, and within the private sector. Because this problem has to do mainly with scholarships and other student subsidies, it principally affects the statistics on sources of funds for tertiary education; however, it also affects the figures on secondary education in some instances. To measure the initial (before transfer) contributions of households correctly, it is necessary to net out from household payments some or all of the financial aid provided to students or their families from public and, in some cases, private sources. For instance, if students pay $10 billion in tuition fees to universities but $4 billion of this amount is offset by scholarships, only the remaining $6 billion can be counted as funds originating from the household sector.

An important complication is that countries generally lack the data needed to distinguish among three conceptually distinct categories of household spending for education: payments to educational institutions (tuition and other fees), direct purchases of educational goods and services, and expenditures for student living expenses. Data on the latter two items are often unavailable. As a result, it becomes difficult to calculate the household shares of initial and final spending. Altering the previous example, suppose, as before, that students pay $10 billion in tuition fees and receive $4 billion in scholarships, but assume now that the scholarship recipients (only a fraction of all students) need only $3 billion to defray their tuition fees, leaving $1 billion to cover living expenses. Contrary to the previous result, it now appears that $7 billion of the $10 billion in tuition fees (i.e., $10 billion less the $3 billion tuition offset) should be counted as funds originating in the household sector. However, this revised result could not have been obtained without information on the amount of tuition fees paid by the aid recipients--information that usually would not be available in practice.

Two further points concerning financial aid to students are mentioned only briefly, because they relate to issues already discussed in Chapter 7. One is that there is ambiguity in some cases as to whether the government scholarships provided to students to offset required tuition fees should be counted as financial aid to students or as public support of institutions. The answer affects the calculation of final household expenditures, and hence would influence an international comparison of the final private share of education spending. The other is that accounting for student subsidies can become more difficult when a substantial portion of financial aid for students originates in the private sector, as in the case of the government-guaranteed and government-subsidized but privately provided student loans in the United States. Lacking guidance on how to deal with these types of transactions, some countries have omitted certain flows of funds (e.g., student loans), while others have arrived at ad hoc, and hence often inconsistent, solutions.

Classification of Funding Sources

One might expect at least one element of the categorization of expenditures by source to be straightforward--the classification of funding entities as public or private; as central, regional, or local governments; and, in the private sector, as households, firms, or other nonprofit organizations. Most aspects of this classification are indeed problem-free, but there are some exceptions. The public-private distinction blurs with respect to certain quasi-public organizations. The status of such entities as German and Austrian chambers of business and labor is ambiguous, as is that of the nonprofit, government-subsidized student organizations that provide subsidized housing, meals, and other welfare services to tertiary students in several European countries. The public or private identification of autonomous, publicly funded universities is itself ambiguous in some instances, raising questions about, for example, the proper classification of funds that such institutions raise from their own sources.

The central-regional-local classification of public-sector funding sources implicitly assumes a three-layer structure of government, which does not exist in all countries. Where only two levels of government are involved in education finance (as in the United Kingdom), it may not be clear whether the lower-level units should be considered regional or local. Where there are four levels (as in Italy, where there are both provinces and larger regions), the regional-local distinction again can became blurred. The proper classification of national capitals (and possibly other large cities) may also be in doubt in countries where such cities have the same legal status as states or provinces. (The most difficult classification issue of this type concerns a country not covered by this study, Belgium, in which most of the education finance roles usually performed by central government are performed instead by three linguistically-defined "Communities." The Belgian practice of referring to these Communities as "regions" and classifying both provinces and municipalities as "local" has impeded comparisons of sources of education funds between Belgium and other countries.)

Consequences of Definitional Problems

Because of the conceptual and definitional problems discussed here, OECD was not able to present comprehensive indicators of sources of education funds in either the first or the second edition of *Education at a Glance*. EAG1 offers statistics on initial and final sources of only the public portion of education funds (that is, figures showing the central, regional, and local government shares); it does not show the shares of funds generated or expended by the private sector. EAG2 provides only a breakdown of education spending by *initial* source of funds. The reason is that OECD, having become aware (in part because of this study) of the conflicting definitions of after-transfer expenditures used by different countries, concluded that the then-available figures on final sources of funds would have been misleading.

The EAG2 statistics on funding sources were also limited in two other respects: First, some countries could not provide data on funds from private sources; second, uncertainty regarding the appropriate treatment of general-purpose intergovernmental transfers caused some countries not to report the shares of public funds originating at different levels of government. In short, comparability problems prevented OECD from including in EAG2 an adequate presentation of international differences in the division of responsibility for funding education.

Findings Concerning Individual Countries

The following remarks concerning individual countries' statistics on sources of funds focus mainly on national interpretations and applications of the pertinent concepts and definitions. Data gaps are noted, and more specialized country-specific problems are mentioned in some instances. The remarks pertain, unless stated otherwise, to data submitted for EAG2. As a result of the wholesale restructuring of OECD's finance data collection instrument, some countries thoroughly revised their methods of reporting sources of funds for EAG3. We have not been able to review these changes systematically or in detail, but we allude to them where information is available.

Australia

For EAG2, Australia reported after-transfer expenditures according to the "service provider" definition, which means that all funds received by private schools, including public subsidies, were reported as private expenditures after transfers; and all funds received by public institutions, including fees paid by students, were reported as public expenditures after transfers. For EAG3, Australia switched to the now-standard "final purchaser" approach, embedded in the revised OECD data collection forms. General-purpose transfers from the

Commonwealth to the states have not been taken into account in calculating the after-transfer expenditures of central and regional governments. In other words, the funds provided through such transfers are treated as "own source" state revenue--as if the states had raised the funds themselves. Apart from definitional issues, the breakdowns of expenditures by source were affected adversely by incomplete reporting of funds from private sources and the omission of some types of student subsidies; however, the subsidies are now reported and the coverage of private spending has improved.

Austria

The Austrian finance statistics submitted for EAG2 did not include expenditures of private entities, so public and private shares of funds could not be calculated. Austrian regional (Land) and local governments receive from higher-level authorities both transfers designated for education and general-purpose grants and shared revenues. The general-purpose transfers have not been taken into account in calculating the regional and local shares of final education spending; that is, such transfers have been treated as own-source revenue of the recipients. There is some question as to whether certain central government outlays for secondary education, channeled to and disbursed by the education offices of the Länder, should be construed as direct central government expenditures or as central-to-Land transfers. The Austrian authorities answer this question differently for different types of schools, depending on whether the central government or the Land is legally responsible for the institutions.[2] Two special definitional issues concern (1) the proper classification of education spending in the capital, Vienna, which has the status of a Land but has been treated as a local government for the purpose of reporting education expenditures, and (2) the appropriateness of Austria's inclusion of the expenditures of chambers of industry and labor in the figures on public-sector spending. But the taxonomic issues are overshadowed in the Austrian case by a major data gap, the omission of employers' expenditures for training apprentices (see Chapter 3), which, by itself, results in major understatement of the private sector's contribution to the financing of education.

Canada

Because Canada relies heavily on general-purpose intergovernmental grants to finance its provinces, one cannot say nonarbitrarily what share of provincial education expenditure is financed with central government funds. Canada's ad hoc solution to this problem for EAG2 was to report the before-transfer expenditures of the central (federal) and regional (provincial) governments combined rather than the separate central and provincial contributions. Also, Canada did not provide a breakdown of spending by final source of funds for EAG2. Final expenditures for public preprimary, primary, and secondary education, made mainly by local school boards, would seem to be classifiable with little ambiguity as after-transfer expenditures of local governments. Funds for tertiary education come from multiple public and private sources, but there seems to be little ambiguity, except for possible questions about netting out a portion of financial aid to students, as to the percentages attributable to each source. Using the revised post-EAG2 definitions, Canada has been able to report expenditures by both initial and final sources of funds for EAG3.

France

France's data submission for EAG2 included initial and final expenditures from both public and private sources. After-transfer expenditures have been classified by "final purchaser," which means that funds received by private institutions from the central government are reported as central government expenditures after transfers, and funds provided by firms as well as fees paid by students are reported as private expenditures after transfers. General-purpose transfers from the central government to municipalities and other local authorities responsible for providing and maintaining school buildings has not been taken into account in calculating the contribution of each level of government, but the amount of such aid appears to be relatively minor. There is some ambiguity as to the appropriate classification of autonomous organizations that provide subsidized housing and other welfare services to tertiary students.

Germany

For EAG1, and in its initial compilation of data for EAG2, Germany interpreted the concepts of before-transfer and after-transfer expenditures in a manner incompatible with the interpretations of most other countries. Instead of reporting as before-transfer expenditures the funds obtained by a given level of government from its own revenue sources, Germany reported the total direct expenditure of that level of government, regardless of sources of funds. Instead of reporting funds after transfers--that is, revenue from own sources plus transfers received less transfers paid out--Germany reported the "net direct expenditure" of each level of government, defined as total direct expenditure less transfers received from other levels of government. As a result, the expenditures of local authorities, which receive financial aid from the federal government and the Länder, were reported as being *smaller* after transfers than before transfers. Because of this unusual interpretation, the German figures on expenditure by source of funds were not comparable with those of other countries, and OECD did not include them in EAG1. However, Germany provided revised figures, reflecting more conventional definitions, in time for inclusion in EAG2.

Germany finances its subnational governments through an elaborate system of general-purpose intergovernmental grants, including grants from the wealthier to the poorer Länder, from the federal government to the Länder, and from each Land to municipalities and other units of local government. All such transfers received by the Länder and local authorities have been treated as own-source revenue of the recipients. Private payments for public education seem to have been treated as private-to-public transfers, which implies that the public and private shares of expenditures were calculated according to the "service provider" concept (however, there is some uncertainty in this regard). Incomplete reporting of expenditures from private sources has detracted from the validity of the German figures on public and private shares of spending. However, Germany, unlike Austria, has reported employers' expenditures for dual-system apprenticeship, and thus has taken this major private contribution to education spending into account.

Netherlands

The Netherlands prepared its after-transfer expenditure figures for EAG1 according to the "final purchaser" definition, which means that the public subsidies that cover most of the costs of government-dependent private primary and secondary schools were reported as central government expenditures after transfers. Because of problems in classifying after-transfer expenditures, the Netherlands reported only before-transfer expenditures for EAG2. (As noted earlier, OECD chose not to include any after-transfer figures in that report.) The data on funds from private sources were incomplete in both years. The fact that the EAG1 figures on before- and after-transfer private spending were identical implies that public financial aid to students was not taken into account.

A still-unresolved question concerning financial aid in a system like that of the Netherlands is how to report the tuition fees students must pay to secondary and tertiary institutions (at nationally uniform rates) and the public subsidies provided to the same students to offset these payments. One possibility is to treat such aid as public transfers to households and to count the tuition fees as expenditures of private households after transfers. The other is to the portion of financial aid that offsets tuition fees as a roundabout form of public financing of institutions, and hence as part of final expenditure from public (central government) sources. In the Netherlands case, the two options yield significantly different public and private shares of final spending.

Spain

Spain's EAG2 submission covered before-transfer and after-transfer expenditures from both public and private sources. The after-transfer figures reflect the "final purchaser" definition; however, it appears that the failure to deduct all government subsidies to students from public after-transfer expenditures may have resulted in some minor double-counting. General-purpose transfer payments from the central government play an important role in financing both regional governments (autonomous communities) and local authorities. These transfers are not reflected in the education finance statistics; implicitly, they are treated as own-source revenues of the regions. It follows that the education expenditures of the autonomous communities that have been deemed "competent" in education are considered to originate at the regional level, despite the large central government contribution to regional finance. The same applies to the education outlays of localities.

The central government channels some public financial aid for tertiary students directly to universities as payments in lieu of student fees. There is some ambiguity as to whether this aid should be counted as a public transfer to students or as direct public expenditure for tertiary institutions. Because most Spanish universities are considered autonomous public institutions, there is also ambiguity concerning the public or private classification of funds that the universities raise directly.

Sweden

The Swedish data on before-transfer and after-transfer expenditures were not problematic in the past. Because both expenditures of private institutions and funds from private sources are almost negligible in Sweden, the choice between the service provider and final purchaser definitions is of little consequence. In the absence of tuition fees, there is little difficulty in accounting for flows of funds to and from the private sector. The main form of intergovernmental transfer has been the flow of specifically designated education funds from the central government to the local authorities (communes) responsible for operating schools. (A minor complication is a "reverse" flow of transfers from the communes to regional providers of certain specialized services.) Now, however, Sweden has shifted, as part of a broad decentralization policy, from central government grants specifically earmarked for education to general-purpose grants to the communes to support the whole range of local functions. Henceforth, the question of whether or how to take this general-purpose funding into account will be a major consideration in preparing the Swedish expenditure statistics.

United Kingdom

The United Kingdom excluded all funds from private sources from its INES submissions, making it impossible to calculate public and private shares of education spending. The local education authorities (LEAs) that provide most preprimary, primary, and secondary education in the UK are parts of general-purpose local authorities, which receive most of their funds as general-purpose grants and shared revenues from the central government. Lacking any non-arbitrary way to measure the share of LEA outlays financed with central government funds, the UK chose not to expenditures by initial source of funds.

The UK did report public after-transfer expenditures by level of government, but transactions between the public and private sectors were not taken into account.

An unresolved issue concerning the UK statistics is how to classify public financial aid provided to tertiary students (and some secondary students) to offset the tuition fees such students must pay to institutions. The issue is essentially the same as that mentioned above in connection with the Netherlands: Should such aid be treated as a public subsidy to households--in which case the tuition fees would be counted as private household expenditures after transfers--or should it be interpreted as a slightly disguised form of public funding of institutions, and hence as a form of final public expenditure?[3]

United States

For EAG1 and EAG2, the United States reported its after-transfer expenditures according to the "service provider" concept. This meant that public funds provided to private tertiary institutions were reported as private-sector expenditures after transfers, and private payments to public institutions, including tuition fees paid by students, were reported as public expenditures after transfers. For EAG3, however, the United States switched to the "final purchaser" concept embodied in the revised INES data collection forms.

The United States has avoided what would otherwise have been large gaps in its data on private spending, and consequent understatement of funds from private sources, by developing expenditure estimates. For EAG2, these estimates covered private K-12 education; for EAG3, they also cover some private preprimary education preceding the kindergarten year. Still excluded, however, are expenditures for private proprietary institutions.

The U.S. has encountered difficulties in dealing with financial aid to tertiary students, and hence in quantifying the share of tertiary expenditures originating in the household sector. Part of the problem is a large data gap: The U.S. figures submitted to INES omit student loans (the most important form of aid) and nonfederal scholarships. In addition, information is lacking on the degree to which grants and loans to students offset tuition payments. As a result, the U.S. figures on public and private shares of tertiary funds may be neither accurate nor comparable with those of other countries. (It should be noted that the U.S. system of mixed public and private financing of tertiary education, in which some students pay substantial net tuition fees, while others receive subsidies for living expenses, makes estimating the public and private shares inherently more difficult for the United States than for any other country examined.

General Findings and Implications for Comparability

It is convenient to distinguish between findings concerning the division of funds between public and private sources and findings concerning the breakdown of public spending by level of government. Regarding the public/private split, we observe, first, that there is no disagreement in principle about how to define initial expenditures from public and private sources. The initial public expenditures comprise all government payments for education, including transfers from governments to private parties; the private expenditures include all payments for educational services by private parties *less* the education subsidies received from the public sector. The main practical obstacles to comparability are gaps in the data on private spending and the difficulty of determining the degree to which some countries' financial aid to tertiary students offsets household payments for educational services.[4]

The EAG2 statistics on public and private shares of final (after transfer) expenditures have been more problematic because of the conflict between incompatible definitions. Two of the seven countries that submitted information on private funding, the United States and Australia, based their figures on the service provider concept; four countries reported according to the final purchaser definition, which OECD has now recognized as the appropriate one; and Germany first reported according to an entirely different concept but then joined the latter group. It would not have made sense to try to compare public and private shares between the two groups.

Next consider the statistics on public expenditure by level of government. Those pertaining to after-transfer expenditures are straightforward. One can use them as is to compare national assignments of responsibility for direct, final expenditures of public education funds. But the same does not apply to a comparison of responsibilities for generating public funds. At the time of EAG2, most of the countries examined--all but the Netherlands, Sweden, and the United States--assigned an important fraction of the responsibility for funding education to general-purpose subnational authorities financed, in part, by general-purpose transfers from higher-level governments. (Sweden, too, now relies on this type of general-purpose financing.) General-purpose grants and shared revenues currently are important in financing Austrian and German Länder and localities, Canadian provinces, Spanish autonomous communities and localities, local authorities in the United Kingdom, and Swedish communes. In each such case, the reliance on general-purpose funding creates ambiguity regarding the division of responsibility for generating education funds among the various levels of government. Some of the countries concerned--Austria, Australia, France, Germany, and Spain--handled the problem in their EAG2 submissions by ignoring the general-purpose transfers; that is, they treated the revenue derived from intergovernmental transfers as if the funds had originated with the recipients. This accorded with the instructions then (and now) in effect. The United Kingdom and Canada chose instead not to submit a breakdown of initial expenditures by level of government. As a result, the EAG2 (and subsequent) data tell a misleadingly incomplete story about how and where education funds originate.

In sum, the concepts of initial and final sources of funds were not defined satisfactorily for the EAG1 and EAG2 data collections and did not elicit complete or comparable data from the countries. Two sets of statistics were seriously flawed: those measuring the public and private shares of final spending and those representing the shares of public spending originating from central, regional, and local governments. Faced with the choice of redesigning this component of the expenditure statistics or doing without usable indicators of sources of education funds, OECD opted to revise the data collection instrument. The changes and their expected effects are summarized below.

Changes to Date and Options for Further Improvement

One of the motives for OECD's complete restructuring of its finance data collection forms for EAG3 was to eliminate the features that had previously impeded comparisons of sources of education funds.[5] Subsequently, the revised treatment of funding sources was incorporated, with minor additional changes, into the new UOE data collection instrument. A consequence of the redesign is that national data providers no longer are expected to calculate expenditures before and after transfers themselves and to report the results to OECD. Instead, each country provides the basic data, and OECD does the calculations. Specifically, each country is asked to report *all* education outlays of central, regional, and local governments, households, and other private entities in a manner that permits distinctions among (1) direct expenditures for education services, (2) intergovernmental transfers of education funds, and (3) transfer payments or subsidies to households and other private entities. For example, the UOE form calls for a breakdown of "education expenditures of central government" according to the following categories (see Annex C for the full details):

Direct expenditures for educational services
- for public institutions
- for government-dependent private institutions
- for independent private institutions

Intergovernmental transfers
- to regional governments
- to local governments

Transfers to the private sector
- to students or households
- to other private entities

Direct, or final, education expenditures are defined, in this context, to include both payments for educational resources (e.g., outlays for teachers' salaries) and payments made to the educational institutions that, in turn, are empowered to hire staff and/or purchase other educational resources (e.g., a government appropriation of funds to a university). Similar breakdowns are requested of the expenditures of regional governments, local governments, households, and other private entities.

This reformulated set of data categories yields directly, with no need for further calculation, the final (direct) expenditures of each funding entity (subdivided by type of service provider). In addition, it provides the data items needed to calculate initial expenditure shares. As examples, OECD would calculate the education funds originating from local governments by subtracting from total local government education spending the transfer payments for education received from central and regional governments; it would calculate the funds originating from households by subtracting from total household payments for educational services (mainly tuition fees) the portion of all student aid received by households that goes to offset tuition charges. (The latter calculation is complicated, as has been noted, by the need to distinguish between the portion of financial aid needed to offset tuition payments and the portions available to subsidize student living expenses and direct household purchases of items used in education.)

A principal objective of the redesign was to resolve the definitional problems discussed in this chapter. The conflict between the final purchaser and service provider definitions of final sources of funds has been settled decisively in favor of the former. Thus, for example, "final expenditure from private sources" now refers unambiguously to payments for educational services by households and other private entities, regardless of whether the services are provided by public or private institutions. A feature of the new data collection system, a breakdown of direct expenditures by type of institution (shown in the foregoing illustration of data categories), now makes it possible also to quantify the shares of funds flowing to public, government-dependent private, and independent private service providers.

The distinction between direct education expenditures and transfer payments is now built into the data collection forms and is fully explained in the accompanying definitions and instructions. There should be little further difficulty in interpreting these categories, although, of course, many details of implementing the definitions with national data will still need to be worked out. Instructions have been provided to clarify the treatment of particular types of transfer payments and to deal with the relatively minor past difficulties in classifying funding entities as public or private and as central, regional, or local.

The most important still-unsettled issue concerning sources of funds is whether or how general-purpose intergovernmental transfers should be represented in the education finance statistics. The current de facto solution is the same as that adopted by such countries as Germany and Spain for EAG2: General-purpose funds received by regional and local authorities are ignored in calculating the initial (before transfer) expenditure shares of the levels of government in question. Only funds specifically designated for education are

BEST COPY AVAILABL

included in the education expenditure statistics. Thus, for example, most German expenditures for primary and secondary education are attributed to the Länder and almost none to the central government, even though the Länder depend to a substantial degree on general-purpose grants from the central authorities. This de facto solution cannot be faulted as illogical or inconsistent; the problem is not that it is "wrong" but that it is incomplete. It omits the important, policy-relevant information that substantial shares of regional or local expenditures for education (and other functions) are being financed with funds generated and distributed by a higher level of government.

What can be done to present a more complete picture of the real financial arrangements? One possibility is to add supplemental statistics on the pertinent aspects of general-purpose intergovernmental finance. It would be instructive, for example, to supplement Germany's statistics on Land and local education spending with the information that X percent of Land outlays and Y percent of local outlays for all purposes are financed with general-purpose funds provided by superordinate governments. As a step towards collecting such information, a supplemental data collection table was attached to the EAG3 and UOE data collection forms, in which countries were asked to estimate the shares of regional and local revenue derived from general-purpose intergovernmental aid. The responses received from the first test of this supplemental form were too sketchy to support a corresponding expenditure indicator, but follow-up efforts might yield better results.

A farther-reaching approach would be to present an alternative breakdown of expenditures by source that attributes certain shares of education funding to the providers of general-purpose intergovernmental aid. Imagine, for example, a country where 20 percent of all funds explicitly designated for education originate from the central government and the remaining 80 percent from regional governments, but where, in addition, the regions receive

40 percent of their total revenue as central-to-regional general-purpose grants. Instead of describing the initial sources of education funds as 10 percent central, 90 percent regional, one might take the position that 40 percent of regional spending for all functions, including education, derives ultimately from central government funds. The total central government share of education funding, then, would be 46 percent (10 percent plus 40 percent of 90 percent), leaving a regional share of 54 percent. Of course, these calculations reflect the arbitrary assumption that central government funds are distributed uniformly across all categories of regional spending. Nevertheless, it arguably provides a more accurate picture of the division of responsibility for generating education funds than an approach that simply ignores the general-purpose transfers. But there is no need to choose between one presentation and the other. The two sets of figures, presented side by side, could depict the division of fiscal responsibilities from two different perspectives.

A narrower unsettled issue is the one concerning public and private expenditure shares in countries that, like the Netherlands and the United Kingdom (also Ireland), require tertiary students to pay tuition fees but then provide offsetting financial aid to all or nearly all students. Two alternative statistical treatments of these situations are (1) to report the financial aid as transfers to private households and the tuition fees as final expenditures of the households, or (2) to construe the financial aid as a disguised form of public funding of institutions. Neither approach is self-evidently the more valid. What matters most for comparability is consistent treatment of all the countries concerned. Because international comparisons of final sources of funds would be affected by which accounting method is chosen, it is important for OECD to take a clear position one way or the other.

Finally, we note once again what may seem an obvious point: Although OECD has already resolved some conceptual and definitional issues and may resolve others in the future, the validity of international comparisons of sources of education funds depends ultimately on the comprehensiveness and accuracy of the pertinent data from the individual countries. In particular, an obstacle up to now to valid comparisons of spending by source has been incomplete reporting or non-reporting of the education funds provided by households and other private entities (see Chapter 5). OECD and the other international data collection agencies can do relatively little themselves, beyond exhortation, encouragement, and technical assistance, to fill the current gaps in the private-sector data. The upgrading of this aspect of the data collection can only be accomplished one country at a time.

Notes

1. The data are from NCES, *Digest of Education Statistics 1995*. The percentages are of total revenue from public sources only; the 2.7 percent of total revenue of public elementary and secondary schools obtained from households and other private sources is excluded. The main types of final expenditures not made by local school districts are federal and state expenditures to operate the relatively few schools under their direct control (generally schools serving special-need students) and direct state outlays for textbooks, pupil transportation, and contributions to teacher retirement programs.

2. Austria distinguishes between schools for which the central government is responsible (*Bundesschulen*) and those for which the Länder are responsible (*Landesschulen*), even though administrative control over both is exercised by the education office of the Länder (*Landesschulräten*). Federal funds for the former are treated as direct outlays, while funds for the latter are considered transfers. Thus, the distinction seems to rest more on legal than on functional criteria.

3. An important difference between the UK and Netherlands situations is that the Netherlands imposes tuition fees at nationally uniform rates determined by the central government and channels offsetting financial aid directly from the central government to students, whereas in the United Kingdom tuition fees vary among institutions, and financial aid flows, in the first instance, from LEAs to students (or, strictly speaking, to institutions on behalf of students) but is then reimbursed to LEAs by the central government.

4. The latter problem pertains mainly to the few countries that require substantial numbers of students to pay substantial net tuition fees. The difference is instructive, in this regard, between, on the one hand, the systems of the United Kingdom and the Netherlands (and apparently Ireland) and, on the other, those of the United States and Canada. In the former cases, tertiary students must pay tuition fees, but nearly all tertiary students receive scholarships that offset these fees fully, and many receive additional subsidies for living expenses. Under these systems, it is easy to identify and net out the portion of government aid attributable to tuition payments. Under the U.S. and Canadian systems, however, some students receive financial aid in excess of tuition fees, leaving a surplus for living expenses; some receive only partial offsets for tuition; and some receive no aid. This variability makes it impossible to determine from aggregative data the portion of financial aid attributable to tuition fees. Such a determination would require a more detailed analysis based on disaggregated figures. Consequently, there is ambiguity as to the portions of aggregate tuition fees covered by public and private funds.

5. Because the redesign was carried out for OECD by the author of this report, many features of the restructured finance data collection system reflect the then-interim findings of the expenditure comparability study.

Chapter 10

ENROLLMENT STATISTICS AND EXPENDITURES PER STUDENT

One of the most frequently asked questions about international differences in the financing of education is how spending per student varies among countries. An indicator of expenditures per student offers national policymakers--in principle--the best short answer to the question, "How does my country's investment in each student's education compare with the corresponding investments of other countries?" But whether the indicator can answer this question well in practice depends, of course, on the international comparability of the statistics used to calculate spending per student.

OECD's *Education at a Glance* (EAG2) presents two principal indicators of expenditure per student, each of which provides a different perspective on international differences in the financial resources available to support each student's education. The first indicator is *expenditure per full-time-equivalent (FTE) student by level of education in equivalent U.S. dollars*, with other currencies converted into U.S. dollars at purchasing-power-parity (PPP) exchange rates.[1] This indicator shows, in standard currency units, the absolute amount spent by each country per student enrolled at a given level of education. National policymakers can see from the results how their investment in each student's education compares with the corresponding investments of other countries. The second indicator is *expenditures per FTE student as a percentage of gross domestic product (GDP) per capita*. In this case, the comparison is in relative terms, with each country's expenditure per student compared against a broad measure of the country's standard of living. The resulting figures show what percentage each student's education consumes of the total economic resources available to each person in the country.

The validity of these indicators depends not only on the comparability of the education expenditure statistics (numerators) but also on the comparability of the student enrollment figures (denominators) used to calculate spending per student. Consequently, although assessing the international comparability of enrollment statistics was not, in itself, a purpose of this study (such an assessment would be interesting and worthwhile in its own right), it was not possible to evaluate the expenditure indicators adequately without looking into the international consistency of the FTE student counts.

We learned from our individual-country case studies that the principal enrollment-related obstacles to valid comparisons of expenditure per student are of two kinds: (1) problems stemming from inconsistent measurement of full-time-equivalent enrollment and (2) various mismatches between expenditure statistics and enrollment statistics. These are the problems we focus on in the remainder of the chapter.

Full-Time, Part-Time, and Full-Time-Equivalent (FTE) Enrollment

Problems of Definition and Measurement

Even if all the expenditure statistics were perfect, differences among countries in the method of quantifying FTE enrollment would detract from the comparability of indicators of expenditure per student. The differences are not merely technical. Countries differ not only in the details of how they identify and count full-time and part-time students but also in the underlying concepts. Some countries apply the label "part time" only to persons deemed to be studying outside the "regular" education system. Many continental European countries count as part-time only students in adult, continuing, or other "out of school" education. In particular, some countries do not count any university students as part-time, regardless of how little time such students actually devote to their studies or how slowly they progress. In contrast, such countries as the United States, the United Kingdom, and Australia consider part-time study a normal mode of participation in tertiary education (and the latter two countries consider it a normal form of upper-secondary education as well). Thus, the enrollment measurement issue becomes entangled with the broader issue of what the regular education system does or does not include.

Two steps are logically required to produce statistics on FTE enrollment. First, a country must identify and count its full-time and part-time students at each level of education. Second, the count of part-time students must be translated into an "equivalent" number of full-time enrollees, which can be added to the count of full-time students from step one. Consider the problems encountered at each step.

Who Is a Part-Time Student? It should not be surprising that countries have different ideas about whom to count as part-time, because there is no agreed-upon international definition. The 1991 OECD/INES Handbook refers repeatedly to full-time and part-time students but never explains how to identify them. One finds only the statement (pertaining specifically to tertiary education) that "full-time and part-time students are those so classified by the reporting country" (OECD, 1991, p. 100). In the same spirit, the following remark appears in both the EAG2 glossary and the definitions attached to OECD's data collection instrument for EAG3:

> Students are enrolled full-time if they attend a programme that is classified as such by the institution. Otherwise they are enrolled as part-time students. In some countries no distinction between full-time and part-time is made at certain levels.[2]

The joint UNESCO-OECD-EU enrollment data collection forms (Forms UOC1 and UOC3) do offer attempted definitions, as follows:[3]

> Full-time pupils/students: Pupils/students enrolled in programmes where they cannot, in principle, exercise another activity.
>
> Part-time pupils/students: Pupils/students enrolled in programmes where they can exercise another activity, either full-time or part-time. For a given programme, the duration is longer (in semesters or years) when it is organized on a part-time rather than a full-time basis.

The most noteworthy feature of these definitions is that whether a student is full-time or part-time is said to depend not on the extent of that student's participation but on the nature of the program in which the student has enrolled. The implicit premise is that educational institutions serve full-time and part-time students in separate programs. But while this may be true in some European countries, it is not true in general. Moreover, the criterion of whether a student could "in principle, exercise another activity" (presumably referring to employment) is both vague and too loosely related to the concept of part-time participation. An attempt to apply it empirically would yield the unreasonable results that (1) a student who pursues a university course at full speed and graduates in the normal time, but simultaneously holds a part-time job, would be classified as part-time, but (2) an individual who registers for a regular, so-called full-time university program, holds no job, but progresses at only half the normal rate, would be counted as full-time. These results violate not only common sense but also economic sense, as it is the first student, not the second, who would consume a full portion of the university's resources. In sum, the UOC definition is not acceptable.

In the absence of adequate guidelines, countries have responded differently to OECD's requests for data on full-time and part-time enrollment. Students who would be considered part-time in some countries are considered full-time in others, and vice versa. Even in cases where the need to distinguish between full-time and part-time students is undisputed, there is no agreement about what rule to apply. Should participation be measured by the number of hours of instruction, for example, or perhaps the number of lessons per day (or week, or year), and if so, what should be the threshold below which a student is classified as part-time? Should the criteria vary by level of education? Should the mode of education--regular, adult, continuing, distance, etc.--be taken into account? Thus far, each country has had to devise answers of its own. We can see from the differences in the definition of part-time alone, even without considering how part-time students are translated into full-time equivalents, that the FTE enrollment figures calculated by OECD are not fully comparable across countries.

The importance of the definitional discrepancies varies by level of education. How full-time and part-time are defined is of little consequence at the primary and lower-secondary levels, where nearly all students in most countries are full-time by any standard.[4] The definition of part-time is significant at the preprimary level in countries where full-day preprimary schooling is not the rule. We find, for example, that some countries distinguish in their statistics between full-day and half-day participants, whereas other countries count all preprimary pupils as full-time regardless of how much or how little they actually participate. At the upper-secondary level, the full-time/part-time distinction is unimportant in connection with whole-day, school-based general or vocational-technical education, but it is very important in other situations. Specifically, it matters (1) in countries where part-time study is a normal route to upper-secondary qualifications, (2) where many students are enrolled in dual-system apprenticeship programs, involving part-time schooling and part-time employer-based training, and (3) where significant numbers of students pursue upper-secondary studies through "nonregular" adult or continuing education programs. Counting everyone as full-time in these situations would certainly weaken international comparisons.

But the most serious definitional conflicts concern enrollment in tertiary education. At the tertiary level, the main discrepancies are conceptual or doctrinal rather than merely technical. Some countries report substantial percentages of both "university" (ISCED 6/7) and "non-university" (ISCED 5) students as part-time, recognizing part-time study as a normal and important mode of postsecondary education. Other countries reject the concept of "part-time university student" in principle and automatically enter zero or "not applicable" when asked to report part-time participation in ISCED 6 or ISCED 7 programs.

Education officials of the latter countries do not deny that some students participate in tertiary education at less than full intensity. In fact, several have offered anecdotes and even cited research findings to the effect that many students participate at low levels, interrupt their studies, work while enrolled, or take many more than the theoretically required number of years--sometimes 8 or 9 years or longer--to earn a first university qualification. Rather, the refusal to report part-time enrollment reflects the same perspective as the UOC definitions cited above: If university programs are designed for full-time students, then all persons enrolled in them must be full-time--whether they are or not. In other words, whether a university student is part-time is considered not an empirical question but rather a question about official status.

There is also a more straightforward practical reason for not reporting part-time students: The tertiary enrollment figures of the countries concerned are based on the numbers of individuals who register for tertiary programs. Because the registration records contain no information on the degree of participation (that is, students do not register for certain numbers of "courses" or "units," as they do in the United States), there is no easy way to determine who participates less than full-time. The country simply counts every registrant as a full-time enrollee and reports accordingly to the international agencies.

To illustrate the potential consequences of inconsistent definitions, consider this hypothetical but realistic case: Suppose that a country has one million tertiary students, of whom 30 percent might be considered part-time based on low intensity of participation or a significantly slower-than-theoretical rate of progress toward a qualification. If the country's statisticians acknowledged that some tertiary students participate only part time and counted each such student as, say, one-half an FTE student, they would report 850,000 FTE tertiary students (that is, 700,000 full-time students plus one-half of 300,000 part-time students). If they did not recognize part-time status, they would report 1,000,000 FTE students. This 15 percent difference in reported FTE enrollment would translate into a difference of almost 18 percent in calculated expenditure per student--more than enough to produce misleading comparisons of spending between countries that do and do not distinguish between part-time and full-time students.

How Should One Calculate Full-Time Equivalents? Assuming that agreement could be reached about how to identify and count full-time and part-time students, the next task would be to translate the counts into FTE enrollment. The general definition of FTE enrollment at a specified level or in a specified type of institution is

$$\mathrm{FTE} = \mathrm{FT} + (\mathrm{C} \times \mathrm{PT}),$$

where FT, PT, and FTE signify full-time, part-time, and full-time-equivalent enrollment, respectively, and the coefficient C is the fraction of an FTE student represented by the average part-time enrollee.[5] For example, a coefficient of 0.4 means that the average part-time student's participation (however defined) is 40 percent that of a full-time student. The question is what coefficients, derived by whom and in what manner, should be applied to each country's counts of part-time students at the various levels of education.

Thus far, the question has not been answered satisfactorily. On one hand, OECD has adopted a *laissez faire* policy: It has invited each country to submit its own coefficients but has offered no guidance as to how such coefficients should be derived. On the other hand, OECD has also specified default coefficients, which it uses when a country fails to provide its own coefficients or when the country agrees that the OECD default values should apply. In fact, the default coefficients were used to calculate most of the expenditure-per-student figures that appeared in EAG1 and EAG2. The default calculation method prescribed in the INES instructions for the EAG3 data collection is as follows:

> In the case of pre-primary, primary, secondary, and special education, part-time students are counted as full-time without conversion. In tertiary education, the duration of studies is typically longer if the programme is taken at less than full-time pace. Conversions are therefore made. Full-time equivalents have been therefore calculated using the following convention:
>
> ISCED 0, 1, 2, 3, and 9: one part-time enrolment equals one full-time enrolment;
>
> ISCED 5, 6, and 7: two part-time enrolments equal one full-time enrolment.

The built-in contradictions are hard to ignore. After having asked countries to report full-time and part-time enrollment separately, OECD selected a default computation method that ignores the distinction (at all levels except tertiary) and calculates both FTE enrollment and expenditure per student as if all the part-time students were studying full-time. In other words, OECD has not taken the part-time status of some preprimary and upper-secondary students into account for the purpose of calculating spending per student, even when the country concerned has reported full-time and part-time enrollment separately. One aspect of this arrangement can only be described as perverse: Several countries that reported significant numbers of part-time students at pre-tertiary levels of education then agreed to accept OECD's default coefficients of 1.0 for the same levels, thus seeming to imply that their own statistics on part-time enrollment should not be taken seriously.[6]

In each case where a country has reported part-time enrollment but the applicable coefficient has been set at 1.0, FTE enrollment has been overstated and expenditure per FTE student has been understated. (This is apart from the previously discussed point that some countries have failed to identify and report their part-time students.) In addition, in all cases where the OECD default coefficient of 0.5 has been used but the true coefficient is greater or less than 0.5, FTE enrollment has been mismeasured, and expenditure per student has been correspondingly miscalculated.

In the absence of international standards or guidelines for determining full-time equivalency, even the relatively few countries that have taken the trouble to develop their own empirically-based coefficients generally have not used equivalent methods. Although the details of these methods have not been examined, it appears that some countries have used class-hours or lessons as the metric of participation, while others have used course units or credits. Each country has also had to decide for itself what threshold level of activity constitutes full-time participation. Therefore, when country A offers a tertiary FTE coefficient of 0.5 and country B offers a coefficient of 0.33, one cannot safely assume, without further inquiry, that the average part-time student in country A really is involved more intensively in education than the average part-time student in country B.

The potential discrepancies due to using inappropriate coefficients are smaller, of course, than those due to ignoring part-time status all together. Referring to the earlier numerical example involving 700,000 full-time and 300,000 part-time tertiary students, the effect of using a conversion coefficient of 0.5 when the true coefficient is 0.33 would be to overstate FTE enrollment by around 6 percent, and hence to understate expenditure per FTE student by about the same percentage. This is not as large an error as results from counting all part-time students as full-time, but it certainly is too large an error to ignore.

Findings Concerning Individual Countries

The following remarks on individual countries focus on the issues discussed above: whether the country has reported both full-time and part-time enrollments, whether its practice in this regard differs by level of education, what definitions of part-time participation it has used, and whether it has provided its own FTE-conversion factors or accepted the OECD defaults. Unless otherwise indicated, the comments refer to statistics prepared for EAG2.

Australia. For EAG2, Australia reported part-time enrollment only for tertiary education. However, most individuals reported as part-time tertiary students were enrolled in technical and further education (TAFE) programs, many of which, though classified as ISCED 5 in Australia, would have been considered upper-secondary (ISCED 3) programs, or even lower-secondary (ISCED 2) programs, in other countries. In fact, Australia has since reclassified may TAFE students as ISCED 2 or ISCED 3 enrollees and, as a result, now reports part-time secondary as well as tertiary students. Australia has indicated to INES that 2.2 part-time tertiary students should be considered equal to one full-time student, which translates into a conversion factor of 0.45 FTEs per part-time enrollee. A different factor may be proposed for upper-secondary education.

Australia lacks data on preprimary enrollment, and hence has provided no counts of either full-time or part-time preprimary students. We understand that most children attend preprimary schools for only a few hours a day, which suggests that many would be counted as part-time if such data were compiled.

Austria. The Austrian data submissions included no part-time students at any level of education. Nevertheless, there is little doubt that part-time students can be found at several levels. Some preprimary students attend school both morning and afternoon, while others attend only in the morning or in the afternoon, yet all have been counted as full-time. As a result, expenditure per FTE preprimary pupil would be overstated (if the expenditure figures were complete). Most adult education students are undoubtedly part time, including those served by regular upper-secondary and tertiary institutions, but because they are not considered "regular" students, they have been omitted from the Austrian statistics.

Although part-time status is not recognized at the university level, Austrian officials acknowledge that many university students are de facto part-time students. Some students register but are inactive; others hold jobs while attending school. Doctoral students working on dissertations may be counted as full-time students for many years, even though they are not actively engaged in studies and are employed outside the university. Some part-time ISCED 5 students have been viewed as participants in adult education and not reflected in the enrollment statistics. Clearly, the failure to acknowledge part-time participation results in overcounting of enrollment and underestimation of expenditure per tertiary student.

Canada. Canada has reported part-time enrollment at the preprimary and tertiary levels. Because Canadian preprimary pupils generally attend school for only a half day, the country counted them all as part-time in its reports to OECD; but then, by accepting INES's default preprimary coefficient of 1.0, Canada has caused each so-called part-time student to be counted as full-time for the purpose of calculating expenditure per FTE student. Canada has reported that nearly half its tertiary students are part-time and stipulated that each part-time student should be counted as one-third of an FTE.

France. All students enrolled in so-called regular education programs have been counted as full-time. The French data providers recognize that some number of tertiary students are not really full-time, but the data have not been adjusted to reflect this. Numerous part-time students are enrolled in "out of school" (*extrascolaire*) education, some of which is provided by the same institutions as provide regular education, but these students were not included in the enrollment figures submitted to INES for EAG2 (however, France changed its approach for EAG3, and such students now are included). In effect, part-time students were defined away, not recognized as part of the normal education system, and hence not reflected in the data. Supposedly, however, the same distinction between *scolaire* and *extrascolaire* education has been made in the expenditure data, meaning that, in theory, the calculation of expenditure per regular student should not be distorted.

Germany. The German data submissions to OECD recognize small numbers of part-time students in two categories: enrollees in certain upper-secondary vocational-technical schools and enrollees in some ISCED 5 tertiary institutions. Otherwise, part-time status has not been recognized. At the preprimary level, no pupils are counted as part-time, even though some attend only in the morning or only in the afternoon, while others attend a full day. Although a few upper-secondary students are considered part-time, Germany has accepted the OECD default coefficient of 1.0 for ISCED 3 education, which means that these students are counted as full-time for the purpose of calculating expenditures per student.

The failure to recognize part-time enrollment in German tertiary institutions is a major problem. German university students commonly remain enrolled for many more than the theoretically required number of years. Some interrupt their studies for work or other activities. Nevertheless, everyone who registers as a university student is counted as full-time. The result is an artificially low estimate of spending per student. Although there is no good basis for estimating the degree of understatement, the fact that the average German university student remains enrolled for about 8 years before receiving a first tertiary qualification (as compared with theoretical durations of 5 to 6 years) suggests that the true outlay per FTE student is greater by at least 30 percent than what OECD has calculated.[7]

Netherlands. The Netherlands has reported small amounts of part-time participation in lower-secondary, upper-secondary, and non-university tertiary education. Some secondary part-time students are enrolled in adult education, and some of the upper-secondary students are in apprenticeship programs. Each part-time enrollee has been counted as one-half of an FTE for the purpose of calculating expenditure per student. Programs of non-university tertiary education are designated as either full-time or part-time, and students are classified accordingly; that is, the statistics do not necessarily reflect the degree to which individual students are involved in tertiary studies. Likewise, because no university programs are officially designated part-time, all regular university students are considered full-time regardless of the actual extent of their participation. If and to the extent that some university students pursue their studies at less than a full-time pace, FTE enrollment would be exaggerated, and spending per FTE university student would be correspondingly understated.

Spain. The only students classified as part-time in Spain's data submissions to OECD are enrollees in certain special upper-secondary (ISCED 3) programs. These number only about 7 percent of all ISCED 3 students. Each such student is counted as one-half of an FTE. All other students are considered full-time. In particular, Spain is one of the countries that does not recognize the concept of part-time participation in tertiary education, and hence has counted every tertiary student as a full-time enrollee.

Sweden. Sweden reported no part-time students in its EAG2 statistics, except to indicate verbally that a few people counted as full-time tertiary students were actually part-time participants. All university students have been counted as full-time, even though many are de facto part-time and remain in school for many more than the theoretically required

BEST COPY AVAILABLE

number of years. However, unlike some of the other countries that follow the same practice, Sweden has acknowledged that this inflates the ISCED 6-7 enrollment count and results in understated expenditures per student.

For EAG2, the many part-time participants in various forms of Swedish adult education were omitted from the country's enrollment figures. For EAG3, however, Sweden began to include some adult education students. This resulted in the reporting of small numbers of part-time students at the primary and lower-secondary levels and substantial numbers (about one-third of all enrollees) at the upper-secondary level. Sweden has counted each part-time ISCED 0-3 student as one-half of an FTE but has expressed misgivings about the appropriateness of this factor for adult education. A different adult coefficient may be developed in the future.

United Kingdom. The problem of quantifying FTE enrollment is of great importance for the United Kingdom because most students over age 16 (about 70 percent) attend school part time. The UK data submitted to OECD do not reflect this high a rate of part-time participation because many part-time enrollees in adult education programs have been omitted from the UK statistics. Even so, the UK has reported numerous part-time participants in preprimary, upper-secondary, and tertiary education.

The UK uses multiple factors to produce its own estimates of FTE enrollments in further and higher education. These allow for variations in the intensity of participation among persons enrolled in regular and adult programs, day and evening programs, distance education programs, etc. For OECD, the UK has provided a coefficient of 0.5 for upper-secondary education and a coefficient of 0.35 for tertiary education. Although about half of all UK preprimary students are classified as part-time, the UK has accepted the OECD default coefficient of 1.0, meaning that the full-time/part-time distinction has been ignored in calculating expenditure per preprimary student.

United States. The United States has reported large percentages of part-time students at both the preprimary and tertiary levels (about 60 and 43 percent of total participants, respectively). Preprimary students are considered part-time if they participate in half-day rather than full-day programs. However, by acceding to OECD's default coefficient of 1.0, the U.S. abandoned the full-time/part-time distinction for purposes of calculating expenditure per student, which means that spending per FTE preprimary student is understated.

The U.S. has indicated that small numbers of primary and secondary students participate part-time. Presumably, this refers mainly to enrollees in adult education programs offered by local education agencies. If participants in adult education programs outside the regular school system were counted, the number of secondary part-time students probably would be much greater.

Individual tertiary students usually are identified as full-time or part-time according to the number of course units for which they register, but the details of the classification procedure and the specific threshold for being counted as full-time vary somewhat among institutions. Approximately 63 percent of all ISCED 5 students and 31 percent of all ISCED 6/7 students have been reported as part-time in the U.S. submission to OECD. The U.S. has specified a conversion factor of 0.33 for tertiary education. This low coefficient reflects the fact that many students register for only one or two courses, as compared with a "full load" of five or six.

General Findings and Implications for Comparability

The following summary focuses on the three levels at which part-time enrollment is significant--preprimary, upper-secondary, and tertiary.

Of the ten countries covered by this study, only three--Canada, the United Kingdom, and the United States--have reported part-time participants at the preprimary level. Half or more of the participants in each of these countries (all participants in Canada) have been classified as part-time. However, because all three countries have accepted the OECD default coefficient of 1.0, these large fractions of part-time enrollment have not been reflected in the calculations of expenditures per student. (The distinction between full-time and part-time has been taken into account in calculating rates of participation in preprimary education.) Consequently, it appears that spending per FTE preprimary student in these countries has been understated relative to spending in countries with few, if any, part-time participants. Although the other countries have reported no part-time preprimary pupils, at least three of them, Austria, Germany, and Australia, have half-day students who might be deemed part-time. If so, spending per FTE preprimary student has been understated for these countries as well.

Turning to upper-secondary education, only the United Kingdom reported large percentages of part-time upper-secondary students for EAG2, but Australia should now be doing the same, as it has reclassified many TAFE students as ISCED 3 rather than ISCED 5 enrollees. We cannot judge whether the UK's ISCED 3 coefficient of 0.5 accurately measures the average degree of involvement of part-time upper-secondary enrollees, but we can say that the full-time/part-time distinction has at least been taken into account in calculating the UK's spending per student. The Netherlands, Spain, and Germany have reported small percentages of part-time enrollment. The part-time status of these students is reflected in the coefficients of 0.5 used for the Netherlands and Spain but obscured by the coefficient of 1.0 used for Germany. However, the numbers of reported part-time students in these countries are too small for the choice of coefficient to make much of a difference.

The aforementioned countries and others will report many more part-time ISCED 3 students in the future if they follow the INES instructions to include participants in adult and continuing education in their enrollment figures. Sweden has done so for EAG3. France has numerous enrollees in *extra-scolaire* education, nearly all part-time, who were excluded from the French submissions to OECD in the past but are now included. The questions have been raised but not yet addressed of (1) how the full-time-equivalents of part-time adult and continuing education students should be measured, and (2) whether adult and continuing education should be merged with "regular" education at the same ISCED level or kept separate in calculating expenditures per FTE student.

At the tertiary level, the failure of certain countries to recognize and measure part-time participation casts doubt on the validity of their expenditure-per-student figures. Six of the ten countries examined have reported no part-time participants, or only negligible numbers of part-time participants, in tertiary education. Three of these countries, Austria, France, and Spain, claim to have no part-time tertiary students at all. Sweden has reported none but acknowledges that some exist. Germany and the Netherlands have reported small numbers of part-time students in non-university tertiary programs but have joined the three countries mentioned above in rejecting the concept of part-time university student. In sharp contrast, the four English-speaking countries--Australia, Canada, the United Kingdom, and the United States--all consider part-time study a normal method of pursuing regular tertiary qualifications (both university and non-university) and report large percentages of part-time enrollment in universities and other tertiary institutions. Interestingly, each of the four seems to have determined independently that the OECD default coefficient for tertiary education of 0.5 is too large to represent part-time participation accurately. The U.S. and Canada have specified coefficients of 0.33, the UK has specified 0.35, and Australia has specified 0.45. As a result, the calculated FTE enrollment of each of these countries is considerably lower than the total number of participants. For the other six countries, however, the FTE and total-participant figures are either precisely or nearly the same.

We do not know enough about patterns of participation and progress in tertiary education to be able to guess the true rates of part-time enrollment in the countries reluctant to acknowledge statistically that part-time study exists. In the German and Austrian cases, it seems clear from the data on duration of study that many university students must be de facto part-time students. We can say with reasonable confidence, therefore, that ISCED 6/7 FTE enrollment is substantially overstated for at least these two countries, and consequently that expenditure per FTE student is substantially higher than what OECD calculates. The same probably applies to a lesser degree to Sweden and the Netherlands. Until this situation is corrected, valid comparisons of spending per student between these countries and the English-speaking countries will not be possible. Moreover, to the extent that the true, hidden rate of part-time participation varies among the countries that have rejected the notion of part-time university student, comparisons among these countries will be flawed as well. Considerable additional research would be required to estimate "real" FTE tertiary enrollments in the countries concerned and to adjust the expenditure-per-student figures accordingly.

Changes to Date and Options for Further Improvement

Improving the statistics on FTE enrollment is essential for achieving international comparability of indicators of preprimary, upper-secondary, and tertiary expenditures per student. The current lack of comparability in the FTE figures results from a combination of (1) inadequate definitions and instructions from the international agencies and (2) differences among countries in the pertinent concepts, categories, and measurement methods. The development by OECD of standard definitions and criteria is a necessary but not sufficient condition for solving the problem. Ultimately, there will be no consistent statistics on full-time, part-time, and FTE enrollment, and hence no comparable indicators of expenditure per student, until some of the countries concerned agree to report enrollment (at least for purposes of international comparisons) differently than they have in the past.

Until recently, OECD and the other international agencies, recognizing the diversity of national concepts of full-time and part-time participation, have steered clear of the issue, leaving it to each country to report enrollment as it pleases. The resulting noncomparable enrollment statistics have interfered with efforts to develop sound international indicators, not only in the area of finance but also in the areas of participation and staffing. (For example, it has not been possible to calculate internationally comparable ratios of teachers to FTE students.) Early in 1995, however, OECD assumed a more activist stance. It had become evident as work on the UOE data collection instruments progressed that serious comparability problems would be perpetuated if the full-time/part-time/FTE issue were not addressed. Acting in consultation with UNESCO and Eurostat, OECD undertook (1) to clarify some of the key definitional issues and (2) to provide, for the first time, detailed guidance to the national data providers on how to deal with full-time and part-time enrollment.

The most important principle set forth in the UOE instructions is that full-time or part-time status is an attribute of a student's participation in education, not a characteristic of the educational program in which the student is enrolled. Countries are asked to abandon the notion that participation in a so-called regular program is synonymous with being a full-time student. It should now be clear to all the data providers that the type of education--regular, nonregular, in-school, out-of-school, adult, continuing, formal, nonformal--is one issue; the extent of the students' participation--full time or something less than full time--is a separate, empirical question.

The instructions state explicitly that the appropriate metric for assessing full-time or part-time status is "study load," which, depending on the level and type of program, can be operationalized in terms of either instructional time or progress towards a qualification (i.e., program completion). They specify that the classification of primary, lower-secondary, and, in most cases, upper-secondary students as full-time or part-time should normally be based on such measures of instructional time as numbers of class hours or lessons. They also propose a specific threshold--75 percent of the full-time norm--as the criterion for identifying part-time students. For example, if a country considers 24 class hours per week as the full-time norm for general upper-secondary education, it would count as part-time students all those attending class for fewer than 18 hours per week. The calculation of full-time equivalents would be based on the nominal full-time load. In this example, an upper-secondary student attending only 12 hours a week would be considered a half-time participant. In principle, the coefficient for converting part-time enrollment into FTEs would be based on a weighted average of the participation rates of all part-time students, although in practice, of course, the calculation would usually depend on more aggregative data.

Reflecting the diversity among countries in the amount of instruction considered full-time and the lack of applicable international norms, the new instructions stipulate that the classification of students as full-time or part-time should be based on relative national norms. This means that if one country's upper-secondary students normally spend 24 hours per week in the classroom, while another's normally spend 30 hours per week, the threshold for identifying a student as part-time should be based on the norm for each country--for example, 75 percent of 24 hours for the first country and 75 percent of 30 hours for the second.

Unfortunately, a similarly straightforward approach based on instructional time cannot be applied to tertiary education. Such measures as class hours or lecture hours are of only limited relevance at the tertiary level, where "participation" is in large part a matter of the student's own, self-organized effort. Although the United States and a few other countries are able to use measures analogous to instructional time, such as the number of courses, units, or credits for which a student has registered, these metrics do not exist in the tertiary systems of most OECD member states. Therefore, distinguishing between full-time and part-time tertiary students according to a direct measure of the amount of instructional activity is not possible. The UOE instructions refer to the alternative of indirect measurement based on progress towards a qualification, but offer only limited suggestions as to what such measurement might entail. This is an area where further development is needed (see below).

As to the method of calculating FTE enrollment, the UOE instructions explicitly rule out INES-type default coefficients. Instead, each country is asked to develop and submit its own coefficients for each level and type of education (e.g., both general and vocational-technical ISCED 3 education) for which separate enrollment statistics are collected. Where necessary, these should represent weighted averages of the coefficients applicable to the various programs or classes of institutions found at a particular ISCED level.

The changes to date have addressed the main conceptual issues and certain practical aspects of measurement and classification, but some of the more difficult problems remain unsolved. At the preprimary level, where classification based on the number of class hours seems feasible, a special problem has arisen out of the integration of educational services and extended day and evening child care services in the preprimary institutions of some countries. Comparisons of preprimary spending would be hard to interpret if, for instance, full-time preprimary education were defined to include both the 4-hour-per-day programs of some countries without integrated services and the 12-hour-per-day programs of some countries with integrated services. (In EAG3, the Nordic countries appear to spend more than twice as much per preprimary pupil as most other countries, precisely because their figures include the costs of integrated, day-long programs.) To elicit the information needed to deal with these situations, the UOE instrument asks countries to report the "typical daily duration" of preprimary programs, but the issue of how to calculate and compare spending per student in such cases has not been settled.

But the most difficult area unquestionably is tertiary education, for the reasons indicated above. The lack of comparable enrollment statistics now precludes valid comparisons of expenditure per tertiary student, except perhaps within subsets of countries that happen to have similarly organized tertiary systems. This problem will remain unsolved until some new method of quantifying FTE tertiary enrollment is devised.

The main possibility seems to be to implement the UOE criterion of progress towards a qualification by introducing a measure based on the duration of tertiary study. For instance, students in at least some countries must reach certain "milestones" or accomplish certain intermediate tasks en route to a first university qualification. They may have to pass examinations at certain points or earn intermediate qualifications, such as the French two-year DEUG (*Diplôme d'études universitaires générales*). It might be feasible to infer average participation rates from data on how long students take to reach these intermediate objectives. Although the milestones are different in different countries, that fact alone does not rule out this approach. Just as the norms for instructional hours and lessons can be country-specific, so can the specific standards for judging progress. The question is whether suitable--not necessarily identical--indicators can be identified for each country.

A related idea is to use information on the average duration of tertiary education (time from entry to completion of a first qualification) to infer the average rate of participation. For example, if a program leading to a first university degree is designed to be completed in 5 years, but the average time to completion is 7.5 years, we can say that the average student participates at two-thirds the theoretical rate. That result alone does not translate directly into FTE enrollment--that is, one cannot simply infer that each student should count, on average, as two-thirds of an FTE. One must take other factors into account: Some students participate full time but require more than the theoretical number of years to complete their studies successfully; some interrupt or never complete their studies. Nevertheless, data on average duration provide a starting point for estimation. Admittedly, an approach based on average duration would have the shortcomings that it depends both on retrospective data and on analytical assumptions. Nevertheless, its potential for helping to improve the current unsatisfactory situation, coupled with the shortage of promising alternative approaches, suggests that it should be explored.

Mismatches Between Expenditure and Enrollment Statistics

Apart from the problems of measuring FTE enrollment, difficulties have arisen in calculating expenditures per student because of incompatibility between the expenditure figures used in the numerator and the enrollment figures used in the denominator. These mismatches arise out of differences in statistical coverage and inconsistent classifications of institutions or programs. In addition, there are certain mismatches in the timing of the expenditure and enrollment data.

A mismatch in coverage occurs when the enrollment statistics and the supposedly corresponding expenditure statistics do not pertain to exactly the same activities or the same sets of students. Either students are counted for whom expenditures are not included, or expenditures are included for students who are not counted. As a result, expenditures per student are understated or overstated, respectively. An example of a mismatch resulting in understated spending per student is that some countries' figures on preprimary enrollment include children attending private preprimary schools for which no expenditure data are available. An example of a common situation leading to overstated spending per student is that some countries' enrollment statistics exclude adult education students served by regular educational institutions, while the corresponding expenditure statistics cover all institutional expenditures, including the portion attributable to adult education. Sometimes both types of errors enter into the same calculation. For example, regular ISCED 3 or ISCED 5 institutions may have not only adult education students who go uncounted but also students who are counted but who receive part of their education from employers in the work place. The latter students would be included in enrollment, but part of the corresponding cost, the portion borne by the employers, would be missing.

A mismatch in classification occurs when expenditures are assigned to a different ISCED level or institutional category than the corresponding students. For example, a country may classify some vocational-technical students as ISCED 3 enrollees and others as ISCED 5 enrollees, while reporting all the costs of such institutions as ISCED 3 expenditures. As a result, the calculations of spending per student for both ISCED 3 and ISCED 5 would be wrong, but the calculation for all levels of education combined would be unaffected. The problem is similar to that of mismatched coverage, except that the expenditures or the enrollments in question are not missing but misplaced.

A mismatch in timing occurs when the expenditure and enrollment data pertain to different time periods The usual reason for lack of synchronization is that the expenditure figures refer to a fiscal, or financial, year, while the enrollment figures refer to an academic year. Because the timing problems are different from the other mismatches, they are discussed separately at the end of this section.

Examples of Mismatches of Coverage and Classification

The individual-country case studies brought to light numerous mismatches of coverage and classification (some very minor), but because an assessment of enrollment statistics was beyond the scope of the study, we did not investigate them in detail and cannot offer a comprehensive report. To give a general impression of the nature and significance of these problem, we mention examples from selected countries. These examples all concern the data and calculations for EAG2. Subsequent changes in the finance data collection instruments have made it unlikely that some of these mismatch problems will recur.

- *Austria, France, and others.* Apprentices have been counted as full-time upper-secondary students (following the INES instructions), but the expenditures of private firms for training these apprentices have been excluded, even though such expenditures sometimes cover two-thirds or more of total program costs.
- *Germany.* All pupils enrolled in both public and private preprimary schools have been counted, but only funds from public sources have been included. The omission of fees paid by parents makes the expenditure and enrollment figures incompatible.
- *Germany and Austria.* Students in private (mainly church-operated) primary and secondary schools have been included in enrollment, but the available expenditure figures for such institutions cover only the fraction of funds derived from public subsidies.
- *Australia.* The enrollment figures cover expenditures of independent private schools, but the data on expenditures of such schools are incomplete.
- *Australia.* The Australian enrollment figures do not include preprimary enrollment, but the costs of public preprimary education have been included in total expenditures.
- *Australia.* Enrollment in TAFE institutions has been distributed (of late) between secondary and tertiary education, but all TAFE expenditures have been included in tertiary spending. Consequently, there are mismatches at both the secondary and tertiary levels.

- *Canada*. Outlays for schools operated by various federal ministries have been included in expenditure totals, but the corresponding enrollment figures are unavailable.

- *Netherlands*. Postgraduate (ISCED 7) students are counted as employees ("researchers in training") and hence are not reflected in the enrollment statistics; however, the ISCED 6/7 expenditure figures include the costs of their training.

- *Spain*. Expenditures for education and training programs operated by ministries other than the Ministry of Education and Science have been included, but some of the corresponding enrollments have been omitted.

- *United Kingdom*. Students enrolled in training programs for nurses and medical paraprofessionals operated by the Ministry of Health are represented in the enrollment statistics, but the expenditures of such institutions are not included in education spending.

- *United Kingdom*. Students in extramural departments of universities are excluded from student counts, but no corresponding expenditures are excluded from the higher education expenditure figures (however, fees paid by such students have been omitted).

- *United Kingdom*. Enrollment in "sandwich" programs, in which students alternate between school-based and work-based training, is underreported because some students are engaged in work-based activity on the date of the school enrollment census; however, the corresponding school expenditures are included.

- *United States*. Enrollment in private preprimary schools has been counted, but no data are available on the expenditures of such institutions (except for federal subsidies).

Note that many of the mismatches in these examples stem from gaps in the expenditure statistics discussed in earlier chapters. For instance, some reflect the failure to report expenditures of private educational institutions, some reflect the omission of private firms' expenditures for apprenticeship programs and other forms of employer-based training, and others reflect the omission of expenditures of public educational institutions not under the jurisdiction of the national education authorities. The mismatches of these types would disappear if expenditures were reported more comprehensively. However, the mismatches due to incomplete enrollment data or incompatible classifications would remain even if the expenditure statistics were all-inclusive.

Changes to Date and Options for Further Improvement

Both the INES data collection forms for EAG3 and the new UOE instruments incorporate design changes that should reduce the incidence of mismatch problems. A major change for EAG3 is that countries were asked to report both expenditures and enrollment by type of service provider, distinguishing among public, government-dependent private, and independent private institutions. This has made it possible to eliminate the mismatches resulting from the inclusion of enrollments but the exclusion of expenditures for one or both categories of private schools. In particular, OECD now has the ability to determine expenditure per student in public schools by calculating the ratio of public-school expenditures to public-school enrollment. Formerly, the only options were to include in the numerator either expenditures from public sources only or expenditures from public and private sources combined, without being able to distinguish between public funds flowing to public institutions public subsidies to private institutions. With the new structure, gaps in the private school data--either omitted expenditures or omitted enrollment--affect only the calculations for the private-school sector. They do not interfere with calculating spending per public school student correctly.

Another important change is that countries have been asked, beginning with EAG3, to insert specific codes into the finance data tables to indicate why data items are missing. The codes distinguish between omitted items that are not applicable (not relevant), not available (no data collected), not available but believed to be negligible, and available but included in another category. This information allows the data analysts to avoid mismatch errors in cases where funds from some sources have been included but funds from other sources have been omitted. For example, if a country reports public funds for government-dependent private schools but indicates that tuition payments to such schools are missing, OECD will not make the mistake of calculating expenditures per student using only the data on funds from public sources. In the past, OECD sometimes did so inadvertently, thereby underestimating the per-student expenditures of the institutions in question.

It would be constructive to take the system of missing data codes one step further. Thus far, there is no way to tell when the data in a given expenditure category are incomplete. Suppose, for instance, that a country has two kinds of independent private ISCED 3 institutions, but that expenditures have been reported for only one (e.g., the first kind might consist of independent upper-secondary schools and the second of employer-operated training centers for apprentices). A numerical entry would appear in the pertinent cell of the country's finance data table with no indication that it covered one set of independent ISCED 3 institutions but not the other. If the country's ISCED 3 enrollment data covered both types, the calculated values of spending per student would be too low. Therefore, it seems desirable to create an additional code to indicate "data incomplete" or "only partial data available."

Although comprehensive reporting of expenditures would solve many mismatch problems, comprehensiveness will not be achieved any time soon. The question is what to do in the interim. The new UOE apparatus has provided much of the answer. One element of the new UOE enrollment questionnaire is a pair of "alignment tables," designed specifically to provide aggregate enrollment data corresponding, respectively, to the expenditure and personnel statistics. For example, if a country's regular enrollment data cover preprimary institutions run by noneducation departments of municipalities but the corresponding expenditure figures are not available, the alignment table would provide a reduced preprimary enrollment figure that excludes the enrollment in such institutions. The modified enrollment figure would match the incomplete expenditure data, and the resulting calculation of spending per student would be correct.

Thus far, however, the obverse of this mismatch problem has not been addressed, namely, that the expenditure data might be more comprehensive than the enrollment data. Adjusted enrollment figures do not help in such cases. What is needed are adjusted expenditure figures that exclude the categories of spending for which corresponding enrollment data are unavailable. (An example is that a country may know the expenditures of its open university but not the corresponding number of participants.) A provision that allowed for adjustments in either direction would be a useful addition to the UOC structure.

The idea of narrowing the scope of expenditure or enrollment statistics to enhance comparability raises a more fundamental issue concerning the admissible degree of heterogeneity in international expenditure comparisons: Is it acceptable to use broadly inclusive expenditure and enrollment statistics to calculate spending per student, when to do so entails averaging together figures for diverse types of institutions, programs, and students? Consider the matter of taking adult and continuing education into account. When the objective is to compare countries with respect to the percentage of GDP devoted to investment in education, the inclusion of adult, continuing, and other "nonregular" education is not only desirable but necessary to make the comparison valid. But when the objective is to compare spending per student, the merits of inclusiveness are less clear. Comparisons could be distorted by averaging together, say, high-cost regular upper-secondary education and low-cost evening classes for adults into a single ISCED 3 expenditure-per-student figure. The results would confound international differences in unit costs with differences in the mix of low- and high-cost services. Arguably, a unit-cost comparison is more meaningful when it applies to a relatively homogeneous category of institutions and services. The implication is that we may

BEST COPY AVAILABLE

not always want to compare spending per student for categories as broad as all upper-secondary education, even when the data needed to do so are available.

Without attempting to resolve the issue of what balance between comprehensiveness and homogeneity is best, we can point out the statistical implications of seeking more of the latter. It would be necessary to disaggregate both the expenditure and the enrollment statistics by type of program or service, distinguishing between regular and other modes of education. Sweden, which has a large sector of separate adult education institutions, argued strongly for such disaggregation in INES discussions preceding the EAG3 round of data collection. According to the Swedish proposal, expenditures for regular and adult/continuing education would be reported separately, and expenditure per student would be calculated and compared separately for the two sectors. But whereas Sweden, with its separate adult education institutions, could provide the disaggregated data easily, other countries could do so only with great difficulty or, in many cases, not at all (see the section on adult education in Chapter 3). As an interim measure, INES agreed to calculate expenditure per student exclusive of adult education for Sweden (and, by implication, for other countries that can provide separate data). However, this expedient leaves the general issue of the appropriate degree of aggregation of expenditure-per-student comparisons unresolved.

Mismatches in Timing[8]

Finally, we consider the problem of the lack of synchronization in some countries between the expenditure data and the enrollment data used to calculate expenditures per student. There are two reasons why the two sets of data often pertain to different periods. First, the expenditure statistics are for financial (fiscal) years, whereas the enrollment statistics are for school years, or academic years. The two rarely coincide. The fiscal years of many OECD countries correspond to calendar years, but there are some important variations. The fiscal years of the United Kingdom, Canada, and Japan begin in April, and those of the United States, Australia, New Zealand, and Sweden begin in July.[9] The enrollment figures are for academic years, which, for most OECD countries, begin in August or September and run till the following June or July. (Japan's school year begins in April, Australia's in January, and New Zealand's in February.) Second, the enrollment statistics collected and reported by the countries generally reflect only enrollment on a specified enrollment census date; they do not necessarily reflect the average enrollment throughout the school year. For some countries, the reference date is near the beginning of the school year, but for others it is near the beginning of the calendar year. In some cases, the census date varies by level of education.

These differences in timing have been reflected in the following ways in the calculations of expenditures per student:

- For some European countries, expenditure per student has been calculated by dividing expenditure during a calendar year by enrollment in the fall of the preceding year (the start of the academic year). Thus, the enrollment figures pertain to a time 3 or 4 months before the start of the fiscal year and 9 or 10 months before its mid-point.

- For other European countries, expenditure during a calendar year has been divided by enrollment at the start of the same calendar year. Consequently, any deviation of starting enrollment from average enrollment (due either to students' dropping out during the year or entering the program in mid-year) is not taken into account.

- For the United Kingdom, expenditure during the April-March fiscal year has been divided by enrollment in the January falling within that year (students in further and high education are counted in November and December). Thus, the enrollment census date falls towards the end of the fiscal year.

The importance of these timing differences depends on the rates at which enrollments and expenditures are changing. Whether enrollment is counted in September or January would make no difference if all students who enroll at the start of the school year remain enrolled four months later. However, if non-negligible numbers drop out, the later census date would show fewer students, and hence would lead to a higher estimate of spending per student. Cases where an academic year overlaps two fiscal years are problematic insofar as spending changes from one fiscal year to the next. Depending on the date of the enrollment count, the enrollment figure for the academic year could be associated with either the earlier or the later financial year, resulting in different calculated values of spending per student.

The mismatches in timing introduced relatively minor errors into past comparisons of expenditure per student--discrepancies of no more, in most cases, than one or two percent; but a recent change in the data collection process has made even these errors avoidable. In 1995, OECD determined that it would be feasible for most countries to accelerate the reporting of enrollment statistics by one year, and modified the UOE data collection schedule accordingly. Now a country that formerly would have been asked to provide enrollment data for the school year beginning September 1994 together with expenditure data for the fiscal year coinciding with calendar year 1995 would also be asked to provide enrollment data for the school year beginning September 1995. The availability of enrollment data for both academic years will allow OECD to calculate for each country a weighted-average enrollment figure matched to the country's financial year. In the case just cited, for example, fiscal (calendar) year 1995 is overlapped by eight months of the academic year beginning September 1994 and four months of the academic year beginning September 1995. Therefore, the appropriate denominator to use in calculating expenditure per student for fiscal year 1995 is a weighted sum of enrollments in the two academic years, with weights of two-thirds and one-third (8/12 and 4/12), respectively. Now that such adjustments are feasible, timing discrepancies of the kind discussed here should no longer affect the expenditure-per-student calculations.

Notes

1. Purchasing-power-parity (PPP) exchange rates are rates that equate the domestic purchasing power of the different countries. For example, the 1991 PPP rate between German Deutschmarks and U.S. dollars was 2.09 DM per dollar, indicating that 2.09 DM would buy the same market basket of goods and services in Germany as one dollar would buy in the U.S. It is essential to use PPP rates rather than market exchange rates for these conversions because market exchange rates are affected by numerous economic factors (interest rates, trade policies, prospects for economic growth, etc.) that have little to do with the current, relative domestic purchasing powers of different currencies. The specific PPP rates used to calculate the EAG expenditure indicators are OECD-developed rates pertaining to GDP.

2. EAG2, p. 253 and "Education at a Glance 3 (EAG III), Data Collection 1992: Definitions" (INES internal document), January 1994, p. 36.

3. The definitions cited are those printed on the 1992 version of form UOC2, "Questionnaire on statistics of educational finance and expenditure."

4. The principal exception is that adults enrolled in basic literacy programs or other programs for persons who did not complete primary and lower-secondary education may be classified as part-time enrollees in primary and lower-secondary education.

5. More generally, one could represent FTE enrollment as a sum of part-time enrollments in different categories, each multiplied by a different coefficient, or even as a sum over individual students, with the coefficient for each student representing the degree of that student's participation. A slight point of confusion regarding these coefficients is that the INES project has defined its coefficients as inverses of the coefficients presented here. For instance, if a student attends half-time, INES expresses the applicable coefficient as 2.0, signifying that two PT students are equivalent to one FT student. With the coefficient expressed in this manner, the FTE formula must be written $FTE = FT + PT/C$. However, we find the reciprocal formulation needlessly confusing and have defined the coefficient as specified in the text.

6. Some data on full-time and part-time enrollment that were not used to calculate spending per student have been used to develop other OECD/INES indicators. In particular, they have been used to construct several indicators of rates of participation in education, some of which treat full-time and part-time students separately, and some of which cover full-time students only. We note, however, that some of the same issues as have been raised in connection with comparisons of spending per student have also been raised in connection with comparisons of participation rates--namely that either omitting part-time students or failing to differentiate between full-time and part-time students distorts the comparisons of participation rates across countries.

7. To illustrate, if we assume (conservatively) that the theoretical, or design, duration of a tertiary program is 6 years (in fact, it is less in most fields of study) but the actual average duration is 8 years, the implication is that each student progresses at only 3/4 the full-time rate, and hence constitutes only 0.75 of an FTE student. Expenditure per FTE student would then be 1.33 times as great (i.e., 1/0.75) as the amount calculated by defining all students as full-time. If the theoretical duration were 5 years (a more realistic figure), the corresponding adjustment factor would be 1.6--i.e., spending per student 60 percent greater than the figure corresponding to the assumption that there are no part-time students.

8. This discussion deals only with differences in timing between the expenditure statistics and the enrollment statistics of a given country. Differences between countries in the start dates of fiscal years also have implications for international expenditure comparisons, but these are not discussed here.

9. For details, see the "synoptic table" presented on p. 19 of EAG2.

Chapter 11

GENERAL FINDINGS, CONCLUSIONS, AND IMPLICATIONS

This final chapter has three purposes: to summarize and integrate the principal findings of all the preceding chapters; to offer general findings and conclusions about the past and prospective comparability of expenditure statistics; and to consider the implications of the study's results for both the potential users and the producers of international statistics on education finance.

The organization of the chapter reflects, in part, the different types of international comparisons of interest to policymakers and other potential users of the expenditure statistics. The two immediately following main sections both present findings and conclusions regarding comparisons of expenditure magnitudes--that is, comparisons of total spending (or spending relative to GDP) and comparisons of spending per student. The first of these sections focuses on individual comparability problems; the second provides a cross-cutting perspective, organized by level of education. The third main section offers findings and conclusions concerning comparisons of the composition of education spending--that is, international comparisons of spending by level of education and by source and use of funds. The fourth section summarizes findings by country, indicating how each country's expenditure statistics have diverged from what might be considered the international ideal. This section also comments specifically on expenditure comparisons between other countries and the United States. Distinctions are maintained throughout between problems existing in the EAG2 statistics (1992-93) and the situation that has subsequently evolved. The final main section lays out the general implications of the study for, first, policymakers, researchers, and other potential users of international expenditure statistics and, second, the producers of education expenditure statistics, including both the international data collection agencies and the national data providers.

Comparisons of Magnitudes of Education Spending: Findings Concerning Individual Comparability Problems

This report has documented dozens of problems that detract from the international comparability of statistics on education expenditures. They are of widely varying significance. Some pertain to many or all types of education, others only to specific sectors or levels. Some affect most or all countries, others only a few. Some result in only relatively small errors, which by themselves do not seriously impair comparisons of the amounts spent by different countries (although small errors sometimes cumulate). A few are serious enough, by themselves, to make certain expenditure statistics grossly incompatible across countries, precluding potentially policy-relevant international comparisons. This section places the individual comparability problems in perspective, highlighting those that are most consequential and clarifying which comparisons of expenditure magnitudes are most affected.

Overview

International comparisons of magnitudes of education spending include comparisons of the total amounts spent for education by different countries (usually expressed relative to national population or GDP) and comparisons of expenditures per student. The comparisons may pertain to individual levels, combinations of levels, or all levels of education combined. The majority of the problems affecting such comparisons are problems of inconsistent statistical coverage of expenditures, and the majority of these are problems of incomplete coverage or omission. Also relevant are a few problems of unwarranted inclusion of items that should not be counted as education spending, certain problems of inconsistent measurement of expenditures (or enrollment), and the important problem of inconsistent classification by level of education. The following table lists the main types of problems that affect comparisons of expenditure magnitudes significantly, indicating the specific level(s) of education at which each problem occurs.

The findings concerning each type of problem are summarized below. Each summary focuses first on the comparability of the statistics submitted to OECD for EAG2 (that is, statistics for the financial year 1991 collected in 1992-93). An attempt is made to characterize

Principal Comparability Problems Affecting Comparisons of Magnitudes of Education Expenditures

Comparability Problem	Level(s) Directly Affected (those less affected shown in parentheses)
Omission of private expenditures	All
Omission of expenditures of certain public agencies and institutions	All
Incomplete coverage of costs of support functions	All levels below tertiary
Omission or inconsistent reporting of expenditures for ancillary services	All
Inconsistent coverage and measurement of retirement expenditures	All
Omission of expenditures for other employee benefits	All
Inconsistent durations of, and boundaries between, levels of education	Primary, lower-secondary, upper-secondary, (tertiary)
Reporting of expenditures as not allocated by level	All
Inconsistent definitions of the scope of preprimary education	Preprimary
Omission of expenditures for apprenticeship and other work-based training	pper-secondary, (tertiary)
Inconsistent coverage of adult, continuing, and other "nonregular" education	Upper-secondary, tertiary (primary, lower-secondary)
Inconsistent coverage of expenditures for research	Tertiary
Unwarranted inclusion of expenditures for teaching hospitals	Tertiary
Inconsistent coverage of financial aid and subsidies for student living expenses	Tertiary, (upper-secondary)
Inconsistent measurement of full-time-equivalent enrollment	Tertiary, preprimary
Mismatches between expenditure and enrollment figures	All

the prevalence (number of countries affected) and the severity of each problem (quantitatively where possible, qualitatively otherwise). In addition, supplemental comments on each problem, set apart in single-spaced italics, summarize pertinent developments subsequent to EAG2 and remaining needs for improvement.

Omission of Private Expenditures

The expenditure statistics of many countries either exclude or cover incompletely expenditures from private sources and/or expenditures of private educational institutions. These omissions affect comparisons at all levels of education but are most serious at (1) the preprimary level, where services for many children are financed partly by fees paid by parents, (2) the upper-secondary level in cases where employer-financed training of apprentices is important, and (3) the tertiary level, where institutions may receive significant portions of funding from tuition fees and other payments from private parties. Leaving out private funds is inconsequential in cases where little private spending occurs (e.g., Sweden), but for such countries as the United Kingdom, Germany, and Austria, it has resulted in the omission of significant fractions--perhaps on the order of 10 to 15 percent--of all education spending.

All national data providers are well aware that both funds from private sources and expenditures of private educational institutions should be included. Several countries have taken steps since EAG2 to report private spending more comprehensively, but significant data gaps remain. To fill these gaps, the countries concerned would have to develop either new data collection systems or estimation methods to cover previously neglected aspects of the private side of education finance.

Omission of Expenditures of Certain Public Agencies and Institutions

Apart from omitting expenditures of private institutions, some countries have omitted the education expenditures of certain public agencies or institutions, usually because the entities in question are not officially or traditionally considered parts of the education sector.

The omissions from EAG2 included outlays of noneducation authorities responsible for preprimary education in Austria, Germany, and Sweden; certain training expenditures of labor and employment ministries, and expenditures for tertiary education by health, agriculture, defense, and other noneducation ministries. In addition, education expenditure statistics sometimes fail to capture the expenditures of noneducation ministries for such things as pensions and other fringe benefits for education personnel, education-related debt-service payments, and outlays for constructing school buildings.

Countries have begun to fill some of these gaps. Most notably, many countries now take account of the public expenditures for preprimary education of noneducation agencies, and some have added estimates of outlays of noneducation ministries for pensions and other fringe benefits. The issue of which so-called training programs should be taken into account in education statistics is still unresolved, leaving different countries' ISCED 3 and ISCED 5 expenditure figures inconsistent in this regard.

Incomplete Coverage of Costs of Support Functions

Outlays for administration, building operation and maintenance, and other support functions generally tend to be less thoroughly covered in education statistics when the functions are performed by general-purpose local or regional authorities (as in many continental European countries) than when they are carried out by self-contained education agencies (as in the United States, Canada, and the United Kingdom). In the former cases, some education costs have been "lost" in noneducation accounts, resulting in understatement of preprimary, primary, and secondary expenditures by relatively minor but not negligible amounts. In addition, some countries have omitted education-related administrative and support costs incurred by regional and national education and noneducation agencies.

There may have been some improvements in the coverage of education support costs since EAG2, but in general it does not appear that the countries concerned have taken the steps needed to identify and attribute to education appropriate portions of general government *overhead. Changes in financial accounting systems or the development of special estimation procedures would be required, either of which would pose difficulties for some countries.*

Omission or Inconsistent Reporting of Expenditures for Ancillary Services

Countries differ both in the extent to which their education agencies or institutions provide housing, meals, transportation, and health and psychological services to students and in whether, to what degree, and in what manner the costs of these services have been reflected in education expenditure statistics. Ancillary services for students below the tertiary level are provided in some countries by noneducation agencies, and the costs are sometimes reported in noneducation rather than education accounts. Although the consequent omissions are not large (amounts on the order of 5 to 8 percent of spending seem plausible), they are not negligible. Further, because the same countries as omit costs of ancillary services are also likely to omit support costs, the two problems reinforce each other. At the tertiary level, most countries have reported only net expenditures for student housing, meals, health care, etc. (i.e., expenditures less fees paid by students), but some have reported gross expenditures, and one (the United States) excluded all such costs. The magnitudes of the resulting discrepancies are unknown but could be substantial in some cases.

Apart from statistical problems, a troublesome aspect of the ancillary services issue is that countries vary in the degree to which they provide such services through agencies or institutions, as opposed to leaving it to students or families to cover the costs out of their own pockets. The only way to prevent these variations from distorting expenditure comparisons would be to separate spending for ancillary services from spending for basic educational services and to exclude the former from at least some expenditure comparisons.

Although INES has attempted in its revised data collection forms to distinguish between net and gross costs of ancillary services and to separate such costs from other *education expenditures, these efforts have not yet borne fruit. Some countries lack data on gross spending for ancillary services, and some have been unable to make the requested separations. More intensive efforts at the individual-country level would be required to address this problem successfully.*

Inconsistent Coverage and Measurement of Retirement Expenditures

The problem of inconsistent treatment of expenditures for retirement has turned out to be of greater significance than originally anticipated. Actually, it is a combination of two problems, one of omission and one of inconsistent measurement. For EAG2, the omission of major portions of retirement spending understated the total expenditures of Austria and Spain by 10 to 15 percent and those of Australia by a lesser but still substantial percentage. The inclusion of pension payments rather than retirement contributions exaggerated the expenditures of France by perhaps 10 percent. Reliance on rough estimates of pension costs ("fictitious payments") by a number of countries has reduced the quality of statistics on total education spending.

It appears that the countries that formerly omitted large portions of retirement costs will act, if they have not done so already, to fill the gaps, probably by developing rough estimates of the type already relied on by several other countries. However, the problem of inconsistent measurement is unlikely to be resolved in the near future. Although INES has set forth general principles for quantifying pension costs, technical complexities and data gaps make it uncertain that the affected countries will be able to comply.

Omission of Expenditures for Other Employee Benefits

Some countries have included the costs of health care and other employee benefits or social insurance in their EAG2 expenditure figures, whereas others have excluded them or reported them incompletely. The usual reason for exclusion is that the benefits in question are provided through general social security or civil service systems rather than through the national education finance system. Australia and the United Kingdom have excluded all or most costs of their national health plans from education spending, while Spain has done the same with health care for civil servants. The effect in these cases is to understate education spending by at least 5 or 6 percent relative to that of countries whose figures include such costs. Many countries have omitted outlays for particular benefits other than health care. Unfortunately, a more extensive, specialized inquiry would have to be mounted to determine the full extent of these omissions and the implications for comparisons of education spending.

Although the principle has been enunciated by OECD that health care and other benefits for education personnel should be included regardless of how such benefits are financed, most countries concerned have not yet acted to fill the data gaps. Dealing with the problem is a matter of country-by-country implementation, the key to which is persuading the education statistics agencies to take into account expenditures for social benefits not traditionally counted as part of education spending.

Inconsistent Durations of, and Boundaries Between, Levels of Education

Unlike the problems mentioned above, inconsistent classification of levels of education does not detract from the comparability of statistics on national spending for all levels of education combined; however, it does undercut, often fatally, the comparability of less aggregative expenditure comparisons. The fact that durations, as defined by the individual countries, sometimes vary by a factor of two or more effectively precludes international comparisons of total spending (or spending relative to population or GDP) pertaining to the individual constituent levels of primary-secondary education. For instance, the errors built into comparisons of spending relative to GDP due to differences in duration alone are as large as 50 percent in the case of primary education, and can amount to 100 percent or more in the cases of lower-secondary, upper-secondary, and all secondary education (the analogous problem affecting preprimary education is discussed separately below). In addition, divergent definitions of the secondary-tertiary boundary distort comparisons of upper-secondary, all secondary, and tertiary spending involving Germany (which recognizes multiple cycles of upper-secondary education) and the United Kingdom and Australia (with their hard-to-classify FE and TAFE sectors).

The problem concerning the secondary-tertiary boundary has been partly addressed. The countries with sectors straddling that boundary have begun to apportion outlays between the two levels (in response to revised INES specifications). Separate data on enrollment in first and second cycles of upper-secondary education are being collected, and corresponding expenditure data may be collected in the future. However, the more fundamental problem of widely varying durations of the levels that countries designate as primary, lower-secondary, and upper-secondary remains unresolved. Valid comparisons of spending (or enrollment, or staffing) for the individual constituent levels of primary-secondary education will not become possible unless and until agreement is reached on a new ISCED taxonomy.

Reporting of Expenditures as Not Allocated by Level

The practice followed by several countries of classifying substantial fractions of spending as "not allocated by level," has introduced errors into all expenditure comparisons other than those pertaining to all levels of education combined. For EAG2, the share of total national education spending reported as unallocated ranged from zero to 11 percent among the countries covered by this study; it exceeded 15 percent for certain other OECD countries. Each country's expenditures for specific levels of education were understated (in the aggregate) to the same extent as its expenditures were classified as not-allocated, and inter-country comparisons were correspondingly distorted. Note, moreover, that the cited percentages refer to understatements of spending averaged over all of a country's levels of education; the understatements of spending for particular levels, and hence the comparison errors pertaining to those levels, could be considerably larger.

The post-EAG2 INES instructions stressed the importance of allocating expenditures to specific levels whenever possible, using estimation or proration procedures where necessary. A number of countries have responded by reducing the percentages reported as not-allocated, *sometimes sharply. Further efforts along the same line will be needed to reduce the problem to negligible proportions.*

Inconsistent Definitions of the Scope of Preprimary Education

The EAG2 statistics on preprimary education reflect varying national conceptions of the border between preprimary education and noneducational child care. Views on this matter diverged so widely that some countries reported two or three times as much expenditure for preprimary education as other countries (relative to population or GDP) because of definitional differences alone. (In addition, the figures on preprimary spending were adversely affected by omissions of private expenditures and expenditures of noneducation agencies.) Such drastic deviations from comparability not only rendered the statistics unsuitable for comparing spending for preprimary education itself but also detracted from comparisons of larger expenditure aggregates in which preprimary spending was included.

Following EAG2, INES introduced a standard, broadly inclusive definition of preprimary education, according to which the category was to embrace all institutionalized ("center based") services for children three (sometimes two) and older. Many countries have since changed their reporting accordingly, bringing in previously omitted services for young children provided by public and private noneducation agencies. Although further extensions of coverage are needed, the situation has now been greatly improved. However, the new problem has arisen of how to separate spending for preprimary education from spending for extended day and evening child care in cases where the same institutions provide both.

Omission of Expenditures for Apprenticeship and Other Work-Based Training

Although the OECD countries have agreed that the work-based portions of dual-system apprenticeship programs and other forms of training-in-alternation should be considered part of education, none of the countries that rely heavily on such programs, except Germany, was able to include employers' outlays for work-based training in its EAG2 expenditure figures. As a result, such countries as Austria and Switzerland underreported spending for upper-secondary education by 50 percent or more, while other countries underreported it by lesser amounts. Germany, on the other hand, overinflated its upper-secondary expenditures for EAG2 by counting the compensation of apprentices as education spending. The EAG2 statistics on upper-secondary spending (both total and per student) of the countries just mentioned could not legitimately be compared with those of other countries. More aggregative expenditure comparisons involving the same countries (e.g., comparisons of total primary-secondary spending) would be distorted to a lesser degree. The EAG2 upper-secondary expenditure figures of countries with relatively small apprenticeship sectors (e.g., France and the Netherlands) are understated by minor amounts.

> *Austria recently completed a sample-survey study of employers' expenditures for training apprentices, and some other countries with important employer-based systems (e.g., Switzerland) may be considering doing the same. But Germany was still the only country able to include employer outlays in its INES submission for EAG3 (the apprentices' compensation has been removed from the German figures). Therefore, any comparison of total spending for upper-secondary (or all secondary) education involving the other countries with major employer-based training programs remains misleading. Recent improvements in the OECD enrollment data now make it possible, however, to calculate spending per student for only the school-based portion of upper-secondary education. Therefore, comparisons of spending per student should be feasible in the future, even if comparisons of total spending are not.*

Inconsistent Coverage of Adult, Continuing, and Other "Nonregular" Education

Countries have very different views on how to distinguish "regular" from "nonregular" (adult, continuing, out-of-school) education. That variation, coupled with ambiguous and changing INES instructions, resulted in inconsistent statistical coverage of activities in the adult and other nonregular categories. Some countries excluded adult education expenditures (sometimes defined broadly, sometimes narrowly) from their EAG2 statistics, while others included them, wholly or in part. In the most extreme case, France attributed 11 percent of all national education spending to the nonregular (*extrascolaire*) category and excluded that amount from its figures. The result was to diminish the comparability of expenditure figures for both secondary and tertiary education.

Following EAG2, INES took the clear position that expenditures for adult and other nonregular education (other than for recreational and general cultural programs) should be included in expenditure statistics and assigned to the regular ISCED levels. Some countries have complied, filling or reducing former data gaps, but others have yet to do so. The question has arisen of whether expenditures for regular and nonregular education can be separated for, among other purposes, calculating spending per student. However, the possibility of such separation depends on new operational distinctions among types of education, which probably will have to be developed in the context of ISCED revision.

Inconsistent Coverage of Expenditures for Research

The countries that excluded substantial portions of research spending from their EAG2 statistics, such as the United Kingdom, France, Spain, and Sweden, reported 10 to 25 percent less tertiary spending than they would have if they had followed the practice of the United States, Canada, and Germany of reporting essentially all research outlays. This has been a major impediment to valid international comparisons of both total and per-student spending for tertiary education.

Since EAG2, several countries have begun to report research funding more comprehensively, but others have resisted the idea of including all research funding and called instead for deliberate exclusion of research outlays, or at least the portion thereof that is separately funded or separately budgeted. Efforts to compare tertiary spending net of research have been frustrated by a mix of conceptual problems and data gaps. At present, therefore, inconsistent treatment of spending for research continues to undercut international comparisons of tertiary expenditures.

Unwarranted Inclusion of Expenditures for Teaching Hospitals

Germany and Austria (and formerly the Netherlands) have included substantial portions of the general expenditures of teaching hospitals (i.e., expenditures attributable to patient care) in their figures on tertiary spending, thereby exaggerating their expenditures for tertiary education (other things being equal) by amounts on the order of 15 percent relative to those of most other countries.

The Netherlands has ceased including hospital costs not specifically attributable to medical education, and the other countries concerned could easily do the same, but it does not appear that either Austria or Germany has yet made the necessary adjustment.

Inconsistent Coverage of Financial Aid and Subsidies for Student Living Expenses

The EAG2 statistics on tertiary expenditures did not distinguish between expenditures for educational institutions and subsidies for student living expenses. As a result, countries with generous subsidies for living expenses (e.g., the Netherlands, Sweden, and the United Kingdom) appear to be spending misleading large amounts for tertiary education, other things being equal, compared with countries that require students to finance most of their own living costs (e.g., Canada, Spain, and the United States). The validity of the EAG2 comparisons of tertiary spending has been further undercut by (1) the incomplete coverage of financial aid for students (especially loans, indirect subsidies, and subsidies in kind) in some countries' statistics, and (2) the decisions of some countries to exclude subsidies for living expenses from their INES data submissions, even though other countries had included them.

As part of the post-EAG2 restructuring of the OECD finance statistics, a clear distinction was made between expenditures for educational services and subsidies for student living expenses. This has eliminated the main form of distortion cited above. The problem of uneven statistical coverage of student subsidies persists, preventing satisfactory comparisons of such subsidies among countries; however, that problem no longer interferes with comparisons of expenditures for tertiary institutions.

Inconsistent Measurement of Full-Time-Equivalent Enrollment

Some European countries count all tertiary students (or at least all university students) as full-time, even though many are actually only part-time participants. As a result, their FTE tertiary enrollments are exaggerated, and their expenditures per FTE tertiary student are correspondingly understated. German and Austrian expenditures per tertiary student appear to have been underestimated by 30 percent or more. Comparisons of spending per tertiary student between the continental European countries, which generally do not recognize part-time status, and the English-speaking countries, which generally do, are seriously misleading. A similar failure to distinguish between full-time and part-time participants adversely affects some inter-country comparisons of spending per preprimary pupil.

The main progress to date in this area is that the problem is now widely recognized, but satisfactory methods have not yet been devised for adjusting the tertiary enrollment statistics to make the expenditure-per-student figures more comparable. The current situation, therefore, is that there is no valid basis for comparing spending per tertiary student between the countries that do not take part-time participation into account and the countries that do.

Mismatches Between Expenditure and Enrollment Figures

Comparisons of spending per student were adversely affected by various mismatches in coverage or classification between the EAG2 expenditure and enrollment statistics. The most important such instances are those in which countries have reported expenditures from public but not private sources. Because no distinction was made in the EAG2 data between expenditures of public and private institutions, it was impossible in such cases to correctly calculate spending per student for either public institutions or public and private institutions combined. Other comparison errors arose out of mismatched coverage of adult education, distance education, and educational services provided by noneducation agencies.

The separation of spending of public and private institutions in the post-EAG2 statistics has eliminated the most important mismatch problem. The coverage of spending and enrollment is still inconsistent in some areas (e.g., adult and distance education), but new UOE provisions for adjusting the enrollment data have minimized the effects of these mismatches on the expenditure-per-student calculations.

* * * * *

To recapitulate, the validity of international comparisons of magnitudes of education spending based on the EAG2 statistics is diminished by problems of several types. First, certain general or cross-cutting problems detract from the comparability of statistics on both total expenditures and expenditure per student at multiple levels of education. Such problems include incomplete reporting of private spending, omissions of expenditures for support and ancillary functions, and inconsistent coverage or measurement of outlays for pensions and other fringe benefits. Second, inconsistent national definitions of levels of education ("the ISCED problem") rule out comparisons of total spending for any of the constituent levels of primary-secondary education. Third, several narrower problems further undercut the comparability of expenditure statistics pertaining to particular levels of education: Varying national definitions of the preprimary sector affect comparisons of preprimary expenditures; exclusions of outlays for work-based training and uneven coverage of "nonregular" education affect the upper-secondary statistics; and inconsistent statistical treatment of research and hospital expenses and subsidies for student living expenses impair the comparisons of tertiary spending. Finally, problems in measuring FTE enrollment and matching expenditure and enrollment statistics add to the difficulty of comparing expenditures per student.

Comparisons of Magnitudes of Education Spending: Findings and Conclusions by Level of Education

Expenditure statistics for all levels of education have been affected adversely by the comparability problems documented in this report, but certain levels and aggregations of levels have been affected more strongly than others. However, the degree to which the statistics pertaining to a given level deviate from comparability often depends on whether the magnitude to be compared is total spending (expressed relative to GDP or population) or spending per student. This section presents general findings and conclusions, differentiated by level of education, concerning both types of expenditure comparisons.

Here, as in the foregoing summaries of individual problems, we distinguish between findings concerning the statistics submitted to INES for EAG2 and those concerning the (usually) improved statistics prepared subsequently. However, any view expressed regarding the latter are tentative, as no detailed reexamination of the post-EAG2 statistics has been undertaken. We comment in sequence on comparisons of spending for the following levels and combinations of levels of education: preprimary education; primary and lower-secondary education, considered separately; upper-secondary education; the combinations of primary plus lower-secondary and lower- plus upper-secondary education; all primary-secondary education; tertiary education; and all levels of education combined. In general, these remarks concern comparisons of expenditure magnitudes without regard to source of funds; however, the final subsection focuses on comparisons limited to expenditures from public sources.

Preprimary Education

The single most important problem affecting the EAG2 statistics on preprimary education--drastically inconsistent national definitions of the boundaries of the preprimary sector--was sufficient by itself to invalidate not only the EAG2 comparisons of total preprimary spending and spending relative to GDP, but also the comparisons of such related variables as preprimary participation and staffing. As explained in Chapter 3, some countries defined preprimary education so narrowly in the past (e.g., by limiting it to education for children six and older) that they counted only one-half or one-third as many participants as would have been counted according to the broader definitions of other countries. The resulting deviations from comparability were not of the magnitudes one normally associates with differences in statistical concepts or coverage--say, 10, 20, or 30 percent--but rather on the order of 100 to 200 percent. In addition, gaps in the data on private spending and omissions of the education expenditures of public agencies not deemed "educational" had further deleterious effects on spending comparisons at the preprimary level. As a result, the EAG2 statistics were inadequate to support even crude international comparisons of preprimary expenditure relative to GDP.

Although differences in national definitions of the boundaries of preprimary education do not automatically invalidate comparisons of spending per preprimary pupil, they do raise major doubts about the figures. For instance, a comparison of spending per pupil between countries that define the starting ages of preprimary schooling for EAG2 as three and six, respectively, would depend on the strong and dubious assumption that preprimary institutions spend roughly as much on each three year-old as on each six year-old. In addition, comparisons of spending per preprimary student were undercut by omissions of private funds (which cover large parts of the cost of preprimary schooling in some countries), serious mismatches between the preprimary expenditure and enrollment statistics, and, of course, the general comparability problems affecting all levels of education. These limitations make the EAG2 figures unsuitable for anything more than rough, highly qualified comparisons of per-pupil spending among a carefully screened subset of countries.

The post-EAG2 standardization of the definition of preprimary education has done much to enhance the comparability of the preprimary expenditure statistics, as have the actions of some countries to report private funds and outlays of noneducation agencies more comprehensively. The figures still suffer, however, from incomplete coverage of the latter elements of spending and, of course, from the general comparability problems affecting all

BEST COPY AVAILABLE

levels of education. Also, the move towards more comprehensive coverage of preprimary spending has created one new comparison problem: Sweden and the other Nordic countries included in their EAG3 figures expenditures for extended day and evening child care in preprimary institutions, thus inflating their outlays (both total and per-pupil) relative to those of most other countries. But these remaining difficulties notwithstanding, there is no question that the preprimary spending statistics have improved greatly, and are no longer of lower quality than the statistics for primary-secondary education.

Conclusion: The EAG2 statistics are unusable for comparisons of total preprimary spending or preprimary expenditure relative to GDP and for any but tentative, carefully qualified comparisons of spending per preprimary student among a subset of countries. Subsequent changes in OECD definitions and national reporting practices have eliminated many of the level-specific problems, improving the statistics to the point that at least rough comparisons are now feasible among most of the countries concerned.

Primary Education and Lower-Secondary Education, Considered Separately

The varying nationally defined durations of primary and lower-secondary education have precluded international comparisons of total spending (or spending relative to GDP or population) for any of the individual constituent levels of primary-secondary education. Although UNESCO has included statistics for each separate level in its annual *Statistical Yearbook* (i.e., absolute expenditure figures, stated in national currencies), such expenditure figures are inherently incompatible across countries. For instance, a comparison of expenditure for primary education between Germany and Japan would have a built-in 50 percent error, reflecting the respective four-year and six-year durations of primary schooling. In the case of lower-secondary education, the problem of varying durations is aggravated by the fact that lower-secondary education is institutionally integrated with primary education in some countries and with upper-secondary education in others, and hence is not treated as a distinct level in these countries' national statistics. Recognizing the definitional problems, OECD has declined to include in its indicator reports comparisons of expenditure relative to GDP for any of the separate sublevels of primary-secondary education.

Comparisons of spending per primary or lower-secondary student probably are impaired only slightly by differences in the nationally defined durations of levels. The main problems detracting from the validity of such comparisons in EAG2 were the general comparability problems itemized earlier (inconsistent coverage of private funds, expenditures for support and ancillary services, outlays for retirement and other fringe benefits, etc.) and certain mismatches between spending and enrollment figures. The per-student figures are suitable for rough comparisons, provided that the main deviations from comparability are brought to the attention of prospective users.

Nothing has been done since EAG2 to address the basic problem of inconsistent definitions of levels. This problem will persist at least until ISCED is revised. Some steps have been taken to alleviate the general problems affecting all levels of education, and the mismatches between spending and enrollment figures have been largely eliminated. Accordingly, the figures on spending per primary or lower-secondary student should now be more comparable than they were for EAG2, but the figures on total spending and spending relative to GDP remain unusable for comparative purposes.

Conclusion: The EAG2 statistics are not suitable for comparing countries with respect to total spending for either primary or lower-secondary education, but rough, carefully qualified comparisons of spending per student are possible. Because little has been done to standardize the definitions of levels, comparisons of total spending for the individual levels remain infeasible, although the comparability of the figures on spending per student should now be significantly improved.

Upper-Secondary Education

The problem of nonuniform definitions and durations of levels is most severe in the case of upper-secondary education. The durations of academic or general upper-secondary programs, as defined by the individual countries, range from two to five years, and the durations of vocational-technical programs are even more variable. These variations alone have precluded international comparisons of total spending or spending relative to GDP for upper-secondary education. In addition, the omission of employers' expenditures for work-based training (in all countries except Germany) has resulted in gross underreporting of upper-secondary spending, sometimes by 50 percent or more, by the countries that rely heavily on such training, and lesser but still significant underreporting by other European countries. Even in the absence of durational differences, the latter problem alone would have ruled out comparisons among the full set of countries. Other factors detracting from the comparability of the upper-secondary statistics include inconsistent coverage of spending for adult and other nonregular education, ambiguity in distinguishing between education and labor training, and, of course, the same cross-cutting problems as affect the other constituent levels of primary-secondary schooling.

The effects of the durational differences on comparisons of spending per upper-secondary student are unknown but probably not large. More importantly, the omission of employers' expenditures for apprenticeship and other work-based training has resulted in moderate to major understatement of per-student spending by five of the ten countries, while the inclusion of apprentices' compensation in the German EAG2 figures has overstated that country's per-student outlays. The inconsistencies concerning adult education and various mismatches between spending and enrollment have further degraded the per-student comparisons. In combination, these problems make the EAG2 figures on spending per upper-secondary student seriously misleading and unsuitable for research and policy applications.

Subsequent developments have alleviated some of problems affecting comparisons of upper-secondary spending (e.g., private funds and outlays for adult education are now covered more comprehensively), but the difficulties concerning employers' expenditures and the duration of upper-secondary education remain largely unaddressed (except that Germany has deleted apprentices' compensation from its data). Comparisons of total upper-secondary spending or upper-secondary spending relative to GDP remain infeasible. However, a recent change in the OECD enrollment statistics, the separation of the school-based and work-based components of upper-secondary enrollment in the UOE instrument, now makes it possible to calculate spending per student for just school-based upper-secondary education in cases where countries have not reported spending for work-based training. This development, together with the other recent improvements, makes it possible to produce usable, albeit rough, comparisons of expenditure per upper-secondary student.

Conclusion: The EAG2 statistics on total spending and spending per student for upper-secondary education are not suitable for international comparisons. Because the definition of upper-secondary education has not been standardized, the figures on total spending remain noncomparable, but rough comparisons can now be made of spending per upper-secondary student.

Combinations of Levels Within the Primary-Secondary Range

Two combinations of levels are relevant: (1) primary plus lower-secondary education, which in some countries makes up the compulsory education sector, differentiated administratively and financially from upper-secondary schooling, and (2) all secondary education, or lower-secondary and upper-secondary education combined.

Primary Plus Lower-Secondary Education. The previous negative statements about the comparability of statistics on total spending for the separate primary and lower-secondary levels apply with somewhat less force to statistics for the two levels combined because the durations of the combined levels are less variable. Nevertheless, the combined duration does vary from 8 to 11 years, still posing a significant comparison problem. Otherwise, the main statistical problems affecting expenditure figures for the combined levels are the same as those affecting the separate levels--incomplete coverage of private funds, ancillary and support services costs, pensions and fringe benefits, and the like. These problems, though significant, do not preclude rough comparisons of spending per student, at least among the countries whose statistics are not severely degraded by the aforesaid cross-cutting problems. Note, however, that the inability of some countries--notably, the United States and Canada--to provide separate data on lower-secondary spending limits the set of countries among which spending for combined primary and lower-secondary education can be compared.

All Secondary Education. The nationally defined durations of lower- and upper-secondary education combined, though less variable than the durations of the individual stages of secondary education, still range from 5 to 9 years, effectively preventing inter-country comparisons of total spending or spending relative to GDP or population for secondary schooling. Moreover, although the omissions of employers' expenditures for work-based training and outlays for adult and other nonregular education have smaller adverse effects on comparisons of all secondary spending than on comparisons of upper-secondary spending alone, the effects are still substantial for some countries. These problems, together with the expenditure-enrollment mismatches, seriously impair comparisons of spending per secondary student based on the EAG2 statistics. Because of the improvements instituted following EAG2, the statistics on spending per secondary student (exclusive of employer-financed work-based education) should now be suitable for at least rough comparisons among most, if not all, countries.

Conclusion: The EAG2 statistics on total spending (or spending relative to GDP) for primary plus lower-secondary education and all secondary education are not adequate for international comparisons. The spending-per-student statistics for all secondary education also are unusable for international comparisons, but those for the combined primary and lower-secondary levels are good enough for rough comparisons among a subset of countries. The post-EAG2 improvements have undoubtedly enhanced the comparability of the statistics on spending per student, but the impediments to comparisons of total spending for these combinations of levels have yet to be removed.

All Primary-Secondary Education

Statistics on expenditures for all primary and secondary education combined come closer to being internationally comparable than statistics for either the individual constituent levels or the more limited aggregates mentioned above. One reason is that the problem of inconsistent definitions of levels loses much of its significance: The combined duration of primary, lower-secondary, and general upper-secondary education is 18 years plus or minus 1 year in all the OECD countries. (However, nonstandard definitions of the secondary-tertiary boundary detract from comparisons involving some countries). Another reason is that the special problems affecting statistics on upper-secondary education (problems concerning apprenticeship, adult education, etc.) become attenuated when the upper-secondary expenditure figures are combined with the less problematic primary and lower-secondary figures. A third reason is that the different comparability problems affecting total primary-secondary expenditure have mutually offsetting effects in some instances, making the overall deviations from comparability smaller than the review of individual problems might suggest.

Even so, the general, cross-cutting problems that affect all levels of education introduce significant inconsistencies into the statistics on primary-secondary spending. An assessment of the implications for international comparisons requires a quantitative analysis of the net effects of all the individual problems combined. Such an analysis is not offered here but is presented in Sherman (1996). The main findings, stated very briefly, are that the primary-secondary expenditure figures of two of the ten countries, the United Kingdom and Austria, would have to be increased by large fractions (on the order of one-fifth and two-fifths, respectively) to conform to a specified international standard[1]; those of four other countries might have to be adjusted upwards or downwards by more moderate but still substantial percentages--upwards by as much as 13 percent for Australia and 17 percent for the Netherlands; downwards by as much as 14 percent for Germany and by about 7 percent for Canada; and those of the remaining four countries (France, Spain, Sweden, and the United States) would require only minor adjustments--increases or decreases of less than 6 percent. (The net departure from comparability is relatively small in the cases of France and Spain because large positive and negative deviations associated with specific comparability problems offset one another.)

To appreciate the significance of the quantitative findings, we need to consider the estimated percentage deviations not only by themselves but also relative to the degree of inter-country variation in the variable of interest--spending for primary-secondary education. Using figures presented in Sherman (1996), we find that the standard deviation in primary-secondary expenditure as a percentage of GDP among the ten countries examined is about 13 percent of the mean value for the whole set of countries (the "country mean").[2] Any measurement error exceeding one standard deviation in the variable to be compared across countries (13 percent) can reasonably be labeled "severe," while any deviation greater than one-half of a standard deviation (about 7 percent) can be described conservatively as "moderate." We can say, then, that the primary-secondary spending statistics of at least two of the ten countries examined deviate severely from comparability (relative to the specified standard), while those of four additional countries deviate at least moderately.

If the two countries with severely noncomparable expenditure figures were excluded, the EAG2 statistics of the other countries would be usable for certain limited, relatively undemanding types of international comparisons. They could be used, for instance, to rank countries with respect to aggregate primary-secondary expenditure relative to GDP or to group countries into low-, medium-, and high-spending categories--provided, however, that the statistics were properly annotated to warn users of the remaining important deviations from comparability. The post-EAG2 improvements in the coverage and consistency of the statistics undoubtedly have enhanced comparability, but it is not clear that the gains are yet sufficient to support additional, more demanding applications.

In addition to suffering from the same inconsistencies as detract from comparisons of total spending, the EAG2 comparisons of spending per primary-secondary student were affected by certain mismatches between expenditure and enrollment figures, especially with respect to employer-provided training in the countries with major apprenticeship systems. Consequently, the expenditure-per-student figures may be somewhat less comparable among countries than the corresponding figures on total spending. (This has to be said tentatively, because it is not clear whether problems with the enrollment data would reinforce or offset problems with the expenditure statistics.) Because the post-EAG2 changes in the OECD enrollment statistics have alleviated the mismatch problems, the same general findings as stated above for comparisons of total primary-secondary spending should now apply to comparisons of spending per student as well.

The point that different comparability problems affecting primary-secondary expenditure statistics sometimes cancel each other out, resulting in small net deviations from comparability, deserves further comment. One can view the offsetting effects as welcome accidents, which make the aggregate primary-secondary spending figures of certain countries with significantly flawed statistics more internationally comparable than they would otherwise be. But other, less welcome implications of offsetting errors should be considered: The fortuitous correctness of the broad aggregates generally will not extend to the more detailed expenditure statistics of the same country. Spending figures for particular levels of education and breakdowns of spending by source or use of funds may deviate sharply from comparability, even if the aggregate expenditure figures deviate only slightly. Because the aggregate figures are "OK," the country may not see much need to deal with the underlying statistical flaws. Moreover, any step taken to correct one set of comparability problems without simultaneously correcting the offsetting problems may make the country's aggregate spending figures less rather than more comparable.

That these concerns are not merely hypothetical can be seen from the example of France. France's omission of outlays for *extrascolaire* education from its EAG2 statistics depressed total spending by about 11 percent, but because the overstatement of pension costs raised total spending by a roughly similar amount, the net effect of the two offsetting problems on France's aggregate expenditure figures was minimal. But because the *extrascolaire* problem affected mainly upper-secondary education, while the pension problem affected all levels, all expenditure comparisons for more detailed levels of education were impaired. Then, for EAG3, France added in the previously omitted expenditures for *extrascolaire* education, while leaving the treatment of pension costs unchanged. Thus, France's statistics are now of higher quality, in the sense that a major gap in the coverage of spending has been filled, but the resulting aggregate expenditure figures are, for the moment, less comparable with those of other countries than before. The lesson is that the lucky accident of offsetting errors does not make a country's statistics satisfactory, and does not imply that the underlying problems can be left resolved.

Conclusions: The EAG2 statistics on total spending (or spending relative to population or GDP) for primary-secondary education as a whole are usable only for such undemanding purposes as ranking countries, and then only if the countries with particularly severe comparability problems are excluded. The legitimate uses of the EAG2 statistics on spending per primary-secondary student are at least as limited. The recent improvements have reduced the severity of deviations from comparability, but probably not yet to the point that the statistics are suitable for more demanding applications.

Tertiary Education

Apart from the general comparability problems affecting all levels of education, the following problems specific to the tertiary level detracted from the EAG2 statistics on total tertiary spending: uneven coverage of research outlays, inconsistent reporting of subsidies for student living expenses and the commingling of such subsidies with expenditures for tertiary institutions, and the unwarranted inclusion of costs of teaching hospitals in a few countries' expenditure figures. In addition, the problems of omitted private funds and inconsistently reported expenditures for ancillary services had particularly large effects at the tertiary level. Further, the lack of any expenditure breakdown by type of tertiary education--in particular, the lack of a distinction between university-level and non-university tertiary education--has limited the usefulness of the statistics for international comparisons.

According to Sherman (1996), the EAG2 figures on expenditures for tertiary institutions of the United Kingdom and the Netherlands would have had to be adjusted upwards by more than 40 percent and more than 20 percent, respectively, to conform to a specified international standard; those of France would have had to be raised by 13 to 26 percent and those of Germany by up to 13 percent; and those of Austria, Canada, and Spain would all have had to be reduced by at least 9 percent. Further, these estimates leave out the sometimes reinforcing, sometimes offsetting effects on deviations from comparability of internationally inconsistent reporting of financial aid and subsidies for students' living expenses.[3] Problems of such magnitude make the EAG2 statistics on tertiary expenditures too misleading for all but the least-demanding practical applications.

Moreover, even if the tertiary expenditure figures themselves had been perfect, inconsistent measurement of full-time-equivalent (FTE) tertiary enrollment would have resulted in serious errors in comparing spending per tertiary student. The per-student outlays of Germany and Austria would have been understated by 30 percent or more as a direct result of the failure to take part-time participation into account, while those of several other European countries would have been understated by lesser but still significant amounts. This enrollment measurement problem is sufficiently serious by itself to invalidate inter-country comparisons of per-student spending, especially between the European countries mentioned and other countries (mainly in the English-speaking world) that do distinguish between full-time and part-time tertiary students.

The post-EAG2 improvements in the international finance data collection system have alleviated several of the problems affecting the tertiary statistics. Of particular importance, expenditures for tertiary institutions and student subsidies have now been separated in the finance statistics, removing a major obstacle to valid comparisons. A distinction between expenditures for non-university (ISCED 5) and university-level (ISCED 6/7) education, incorporated into the UOE data collection instrument, should improve the comparability of statistics on spending for the university sector, even if, as is likely, it does not yield comparable statistics on spending for the non-university programs. On the negative side, inconsistent coverage of research expenditures still detracts from the statistics on tertiary spending, and the problems concerning ancillary services costs remain unresolved. Moreover, the problem of inconsistent quantification of FTE enrollment, though now widely recognized, has not yet been addressed. Therefore, although the comparability of statistics on total tertiary spending has improved, the figures on expenditure per tertiary student remain unusable.

Conclusions: The EAG2 statistics on both total tertiary spending and spending per tertiary student were seriously misleading and not suitable for most applications. Subsequent improvements may have made rough comparisons of total tertiary spending feasible, but the statistics on spending per tertiary student will remain unready for international comparisons until consistent measures of FTE enrollment are developed.

All Levels of Education Combined

The previous remarks about comparisons of spending for all primary and secondary education also apply, more or less, to comparisons of spending for all levels of education combined. However, because the expenditure statistics for the preprimary and tertiary levels generally have been more problematic than those for the primary and secondary levels, the deviations from comparability are somewhat greater, on average, when all levels are amalgamated than when the comparison is limited to primary-secondary education.

BEST COPY AVAILABLE

According to Sherman (1996), it would have been necessary to adjust the EAG2 statistics of the United Kingdom and Austria upwards by about one-fifth and to adjust those of six other countries upwards or downwards by amounts possibly exceeding 9 percent (and ranging up to 18 percent) to bring them into conformity with a specified international standard.[4] To put these amounts into perspective, the standard deviation among the ten countries in total education expenditure (all levels combined) relative to GDP is less than 15 percent of the country mean. Applying the same criteria as stated earlier, the deviations from comparability of at least two countries, and perhaps several more, can be described as "severe," and those of as many as six other countries as "moderate." We can say, therefore, that if the two countries with the most serious comparability problems were excluded, rough comparisons of aggregate national education spending relative to GDP (e.g., rankings) based on the EAG2 figures would be feasible for the countries that remain. The post-EAG2 statistics are undoubtedly more comparable, but we have no way to quantify the degree of improvement.

The EAG2 statistics on spending per student for all levels of education combined are probably less internationally comparable than either the corresponding statistics on total spending or the statistics on spending per primary-secondary student. The reason is that the broader aggregate reflects expenditure-enrollment mismatches, inconsistent measurement of FTE preprimary and tertiary enrollment, and the relative weakness of the preprimary and tertiary expenditure figures. But whether the per-student figures are comparable in the technical sense is less important in this instance than whether they are meaningful: Would it be reasonable or useful, even with perfect expenditure data, to compare countries with respect to spending per student for all levels of education combined? Such a comparison involves averaging the per-student amounts spent on everyone from three year-olds in early-childhood programs to participants in the most advanced postgraduate studies. The resulting international variations would reflect differences in mixes of programs, age distributions, and participation rates as much as any real differences in levels of funding. Recognizing the questionable significance of such global comparisons of per-student spending and the difficulty of interpreting them, OECD chose to exclude them--it would appear wisely--from EAG3.

Conclusions: The EAG2 statistics on aggregate spending for all levels of education combined are usable only for crude international comparisons (e.g., sorting countries into low- and high-spending groups), and then only if the countries with grossly noncomparable statistics are excluded. The post-EAG2 statistics, though improved in multiple respects, are still only suitable for broad-brush comparisons among less than the full set of countries. Essentially the same conclusion would apply to comparisons of spending per student for all levels combined, except that the issue of comparability is eclipsed in this case by doubts about whether such broad comparisons of per-student spending are meaningful.

Comparisons Limited to Expenditures from Public Sources

Many published international comparisons of education expenditures give at least as much attention to the publicly financed portion of spending as to the total amount expended for education at a given level; some deal with funds from public sources exclusively (e.g., NCES, 1993; UNESCO, 1993). Although there are some policy-related reasons for focusing on only the publicly provided funds (e.g., interest in comparing countries with respect to the share of total public-sector spending devoted to education), the main consideration in practice usually is data availability: Because many more countries have been able to provide data on public outlays than on total education spending, the only way to present an expenditure comparison covering a broad range of countries has been to limit it to funds from public sources. The question thus arises of how the foregoing findings and conclusions apply (or how they must be altered) when expenditure comparisons are limited to public spending, rather than all spending, for the level of education in question.

Statistics on aggregate public spending generally are more comparable internationally than statistics on aggregate public-plus-private spending for the same level of education. The former, unlike the latter, are unaffected by such problems as incomplete coverage of the education expenditures of households, the omission of employers' expenditures for apprenticeship programs, and the netting out of fees for ancillary services; they are less affected by incomplete coverage of private educational institutions. In particular, some of the problems that most seriously impair statistics on total spending for preprimary, upper-secondary, and tertiary education should have no adverse effects on statistics on public funding for the same levels.

Of course, the statistics on public and total spending are not substitutes for one another; they cannot be used to answer the same comparative questions. That one country's ratio of public education spending to GDP is higher than another's does not necessarily indicate that the first country has invested more of its resources in education; it means only that the first country has invested more through public financial channels. The statistics say more about reliance on a particular mode of financing than about the magnitude of support for the schools. Without information on the public and private shares of education funding in both countries, one would be unable to interpret the figures on public spending relative to GDP correctly. Thus, focusing on public spending involves a tradeoff: somewhat more comparable statistics, but less meaningful and less useful comparisons.

It is difficult to comment on the comparability of statistics on public spending per student because the expenditure and enrollment figures used to calculate that variable are inherently mismatched. The calculation consists of dividing each country's public spending for a given level of education by enrollment at that level in both public and private schools. (The alternative computation, dividing public expenditures by only public school enrollment, makes no sense, because substantial fractions of some countries' public education funds go to support private schools.) It would be misleading to compare the results across countries with different percentages of enrollment in private schools, different degrees of public funding of private schools, or different degrees of private funding of public schools. In this case, the issue is less whether the statistics are comparable than whether they are meaningful. OECD has already answered in the negative: EAG3 presents expenditure per student in public schools and, where possible, expenditure per student in private schools, but not public expenditure per student. This appears to be the appropriate solution.

Comparisons of the Composition of Education Spending

Three aspects of the composition of spending were addressed in the EAG2 (and previous) expenditure statistics: distributions of expenditures by level of education, by initial and final sources of funds, and by use of funds (nature and resource category). This section presents the general findings and conclusions concerning all three, plus comments on additional expenditure breakdowns not presented in EAG2 or previous indicator reports.

Expenditures by Level of Education

The specific problems affecting the breakdown of expenditures by level of education were reviewed earlier in the chapter. Very briefly, the key points are the following: First, by far the most important obstacle to a consistent breakdown of spending by level is the varying definitions and durations of the constituent levels of primary-secondary education. Given these variations, there can be no direct comparisons of the shares of total national education spending devoted to primary, lower-secondary, upper-secondary, all secondary, and tertiary education. Second, an important aggravating factor at the time of EAG2 was the lack of any standard starting age for preprimary education. This not only precluded comparisons of the share of total education funds devoted to preprimary schooling but also interfered with comparisons of the shares devoted to the other levels. Third, ambiguous or atypical definitions of the secondary-tertiary boundary obscure the division of funds between the tertiary and pre-tertiary stages of education in a few countries. Fourth, the reporting of significant fractions of some countries' expenditures as "not allocated by level" obviously blurs the distribution of funds by level. Taken together, these problems have made it impossible to calculate percentage shares of spending by level in a manner that would permit valid inter-country comparisons.

Moreover, apart from the specific problems cited above, calculations of expenditure shares by level are highly sensitive to any gaps or inconsistencies in statistical coverage that affect different levels to different degrees. For example, even if all definitions of levels were fully standardized, the omission by a country of, say, private funds for preprimary schools would understate the share of funds that the country devotes to preprimary education and overstate the shares it devotes to all other levels. Because the true international variations in the allocation of funds by level probably are relatively small in most cases (that is, apart from variations due to definitional differences), even relatively small inconsistencies in coverage could obscure whatever real variations exist among countries.

In an attempt to circumvent the definitional difficulties, OECD has attempted, beginning with EAG3, to compare distributions by level indirectly, using an approach that compares the expenditure share for each level with the corresponding share of enrollment.

However, the results have proven hard to interpret and, more important, the indirect mode of comparison does nothing to address the underlying comparability problems. Efforts to fill data gaps, to standardize the definition of preprimary education, and to resolve certain boundary issues are enhancing the prospects for valid comparisons of the preprimary, combined primary-secondary, and tertiary shares of spending. However, it will not be possible to compare primary and secondary (or lower-secondary and upper-secondary) shares of spending across countries until steps are taken, presumably through ISCED revision, to standardize the definitions of these levels.

Conclusion: It was and remains infeasible to address the issue of how different countries distribute financial resources over the various stages of the education process.

Sources of Education Funds

Some of the same problems as have detracted from comparisons of magnitudes of education spending also have undercut comparisons of the sources of education funds. For instance, inconsistent coverage of private spending for education (including but not limited to employer outlays for work-based training) obviously has made it difficult to compare public and private shares of funding across countries, and incomplete reporting of local expenditures by certain countries (e.g., for ancillary and support functions) has introduced errors into comparisons of expenditure shares by level of government. But the more serious impediments to valid breakdowns by funding source in the EAG2 (and previous) statistics were conceptual problems concerning the classification of expenditures by source. These problems, in brief, are as follows (see Chapter 9 for the details).

- The national providers of EAG2 finance data arrived at conflicting interpretations of the concept of final (after-transfer) expenditures and consequently provided incompatible breakdowns of spending by final source. Once made aware of the problem, OECD had no choice but to withdraw all figures on final sources of funds from EAG2.

- Countries accounted inconsistently for public financial aid to students and for other public-to-private transfers and private-to-public payments. The result was to diminish the comparability of statistics on the public and private shares of education funds.
- There was and is no provision for taking into account general-purpose intergovernmental transfers to general-purpose regional and local authorities responsible for financing schools. The result has been to leave the statistical depiction of funding sources incomplete, especially for countries with federal systems of government.

The post-EAG2 restructuring of the OECD finance data dealt definitively with the first two of these problems. The definitions of initial and final sources of funds have been clarified, and most questions concerning the appropriate treatment of public-to-private transfers and private-to-public payments have been resolved. However, gaps in the coverage of private expenditures still prevent accurate representation of the public and private shares of funding in many countries, and an acceptable method of taking general-purpose intergovernmental aid into account has yet to be devised. The current situation, therefore, is that the statistics on public and private shares of funds are impaired by data gaps, while the breakdowns of public funds by level of government, though generally valid, give a less-than-full picture of the division of responsibility for financing education.

Conclusion: The EAG2 statistics on final sources of funds were unusable, and the statistics on initial sources were incomplete and distorted. The statistics on both initial and final sources of public funds by level of government are now satisfactory, except that general-purpose intergovernmental transfers are not taken into account. Data gaps limit comparisons of the public and private shares of education spending to only a minor fraction of the countries.

Uses of Education Funds

The key problems affecting international comparisons of uses of education funds (breakdowns of spending by nature and resource category) generally are independent of those that affect comparisons of magnitudes of spending. They are mainly problems of inconsistent definition of the different uses ("purposes," in UNESCO terms) among which funds are apportioned. The principal findings concerning these problems are summarized below (the details may be found in Chapter 8):

- Most countries distinguish between current and capital outlays in a more or less standard manner, but a few countries with unusual methods of financing capital (most notably, Austria and Sweden) do so differently, making it inappropriate to include their figures in international comparisons.
- Most countries either have been unable to identify or estimate expenditures for education-related debt service (interest and repayment of principal) or have provided incomplete figures. There appears to be no near-term prospect for including debt service outlays in comparisons of education spending.
- The distinction between personnel and nonpersonnel outlays was obscured in the EAG2 statistics by multiple factors, including omissions of some outlays for support and ancillary functions, reporting of some personnel costs under nonpersonnel headings, the extensive reliance of some countries on contracted services, and incorporation of extraneous elements (scholarships and subsidies) into some countries' breakdowns of final spending by resource category. The result was to render the breakdowns unusable for international comparisons.
- Differences in national definitions of teaching and nonteaching personnel, coupled with the aforementioned difficulties in measuring total spending for personnel, made the EAG2 figures on the teacher and nonteacher shares of personnel compensation generally noncomparable across countries.

The restructuring of the OECD finance statistics addressed some of the problems in this area, clarifying and elaborating the definitions of the different types of personnel and nonpersonnel spending and eliminating extraneous elements from the breakdown by resource category. Thus far, however, limitations of national financial reporting systems have prevented many countries from conforming their international statistics to the new definitions. Consequently, the INES figures on shares of current expenditure allocated to compensation of teaching personnel, compensation of nonteaching personnel, and spending other than for personnel are not yet ready for international comparisons.

Conclusion: Current and capital shares of spending can be compared across countries, provided that certain countries with unusual methods of financing capital are excluded. The EAG2 breakdowns of current expenditure by resource category could not be compared validly across countries, and later versions, though somewhat improved, are still inadequate for international comparisons.

Other Dimensions of the Composition of Spending

Although only the three breakdowns of spending discussed above were feasible with the EAG2 statistics, other aspects of the composition of spending are of potential interest to policymakers and other users. One additional dimension, a breakdown of spending by type of service provider, was added during the redesign of the OECD/INES finance data collection forms for EAG3 and has since been incorporated into the UOE instrument. That dimension and several suggested breakdowns of spending for particular levels of education are discussed briefly below.

The new breakdown by *type of service provider* permits separate reporting of expenditures for public, government-dependent private, and independent private institutions, thereby making it possible, for the first time, to produce statistics on both total and per-student spending for the different classes of institutions. One of the main purposes of this addition already has been achieved, namely, elimination of the mismatches between the expenditure and enrollment statistics that formerly distorted calculations of spending per student. EAG3 presents comparisons of spending per student in public schools or, in some cases, public and government-dependent private schools combined. In the future, as more countries improve their coverage of expenditures for private schools, it should be possible to present comparisons of unit costs in the public and private school sectors.

In addition, a new indicator showing the shares of national education spending accounted for by public and private institutions was developed for EAG3, but incomplete reporting of spending for private institutions detracted from the comparability of the figures and limited the number of countries for which information could be presented. This indicator will not become usable for more than illustrative comparisons until more countries provide reasonably complete coverage of the finances of their private institutions.

Considerable interest has been expressed in separating expenditures for *general or academic* and *vocational-technical* upper-secondary (and perhaps non-university tertiary) education. An indicator comparing unit costs (per-student expenditures) for the two types of education would be of particular policy relevance. The distinction between general and vocational-technical enrollment is now built into the OECD data collection instruments, but no satisfactory method has yet been devised for making a parallel distinction with respect to expenditures. The conceptual and practical barriers to separating the two categories of spending consistently are formidable. For one thing, the problem of unreported employer expenditures for the work-based components of vocational-technical education would have to be resolved. More fundamentally, the present lack of internationally standardized definitions of general, academic, and vocational-technical education would have to be corrected. The latter problem has been addressed as part of the effort to revise ISCED, but the prospects for a satisfactory solution are uncertain.

A further policy-relevant distinction is that between spending for so-called *regular* education and spending for *adult, continuing, and other "nonregular" education.* Efforts to bring previously unreported enrollments in, and expenditures for, the latter categories within the purview of education statistics have met with some success, but a basis for differentiating consistently between regular programs and the adult and other nonregular programs remains elusive. We are unlikely to see progress in this area unless and until the underlying definitional issues are dealt with satisfactorily in the context of ISCED revision.

Finally, an indicator of *subsidies for student living expenses*, as distinguished from expenditures for tertiary institutions, would be of considerable value to education policymakers. Theoretically, the restructured finance data collection instrument provides the framework for such an indicator, but the lack of specific provisions for dealing with indirect subsidies, subsidies in kind, and tax subsidies has prevented the collection of sufficiently comprehensive data. In this instance, there seem to be no large conceptual barriers; with sufficient effort, a comparative indicator of student subsidies could be produced.

Conclusion: Several additional breakdowns of expenditure are of potential policy interest, but none has been developed conceptually and technically to the point that valid international comparisons can be made.

Comparisons Between the United States and Other OECD Countries

Reflecting the strong interest of the U.S. National Center for Education Statistics in expenditure comparisons between the United States and other OECD countries, this section summarizes the key general findings and conclusions pertaining specifically to such comparisons. The summary focuses first on comparisons of spending for education as a whole, next on comparisons of spending for either primary-secondary education or the U.S. category of K-12 education, then on comparisons of spending for the more detailed levels of education, and finally on comparisons of the composition of education spending.

Comparisons of Spending for Education as a Whole

The education finance statistics of the United States are among the more comprehensive of those prepared by the OECD countries but nevertheless are incomplete in several respects. The principal gaps in the figures that the United States submitted to OECD for EAG2 were the following:

- The omission of most spending for pre-kindergarten education (i.e., education preceding the final preprimary year), especially the large share provided by private institutions and/or supported with private funds.
- The omission of expenditures for "noncollegiate" tertiary education, a category consisting mostly of vocational-technical education provided by private, for-profit ("proprietary") institutions. (Spending for such institutions has also been omitted from the statistics of many other countries.)
- The omission of major portions of financial aid to tertiary students, including all student loans and most nonfederal grants. (This omission has only minimal effects, however, on comparisons between the United States and other countries of expenditures for the services of educational institutions.)

For the most part, the same gaps persist today. In addition, it should be noted that the U.S. collects no data on expenditures of or for private preprimary, primary, and secondary schools but has developed rough estimates of such outlays for the purpose of international reporting.

Because the U.S. figures are relatively comprehensive, the aggregate education expenditures of many, but not all, countries are understated relative to those of the United States. Among the main reasons for the understatements are the omissions by other countries of funds from private sources, expenditures for support services by general-purpose local governments, outlays for ancillary services, expenditures for retirement and other employee benefits, costs of the work-based portions of apprenticeship programs, and spending for university research. As to the specific consequences for comparisons, it appears that U.S. aggregate education spending as a percentage of GDP is greatly overstated in the EAG2 statistics relative to that of the United Kingdom and Austria and probably moderately exaggerated relative to spending in Australia, the Netherlands, and Sweden. The U.S. expenditure figures would also have been overstated relative to those of France and Spain, had it not been for the unwarranted inclusion or inappropriate measurement of certain expenditure items in the statistics of each of those countries. Canada's statistics, not surprisingly, generally are closely comparable to the U.S. figures.

Comparisons of Spending for Primary-Secondary or K-12 Education

Most discussions of education finance in the United States focus on spending for K-12 education--a category with no exact counterpart in international statistics. To construct equivalent expenditure aggregates for other countries would require the addition to each country's primary-secondary expenditures of the estimated share of the country's preprimary spending attributable to the final year of preprimary schooling (analogous to U.S. kindergarten). The more manageable alternative is to create a primary-secondary spending figure for the United States by subtracting from U.S. K-12 spending a prorated share representing expenditures for kindergarten. This is essentially what the U.S. authorities have done in preparing their INES data submissions.

Because the U.S. statistics on aggregate primary-secondary expenditure conform closely, with only minor exceptions, to what has become the international standard of appropriate coverage, comparison problems arise mainly because other countries have omitted (or, in a few cases, mismeasured) categories of spending or, more rarely, because they have included inappropriate expenditure items. Specifically, it appears that the primary-secondary expenditures of the United Kingdom and Austria are grossly understated relative to those of the United States, while those of three or four other countries are understated or overstated by moderate amounts. It should be noted that the net deviations from comparability between the United States and other countries are small or moderate in some instances only because substantial errors in opposite directions have more or less canceled each other out. In other words, reasonably accurate aggregate comparisons sometimes are possible--by happenstance--even when the underlying statistics are seriously incompatible.

Comparisons of Spending for More Detailed Levels of Education

Unlike most other OECD countries (but like Canada), the United States normally does not disaggregate its expenditures for pre-tertiary education by level. Federal and state policymakers are accustomed to receiving finance statistics covering all K-12 (sometimes pre-K to 12) education. Separate expenditure figures for preprimary, primary, and secondary education (not to mention lower-secondary and upper-secondary education) generally are not available, although some states and local school districts generate such statistics for their own purposes. The lack of a breakdown of national aggregate expenditures by level is understandable, given the diversity of educational structures in the highly decentralized U.S. system. Nevertheless, the effect would have been to limit severely the types of expenditure comparisons that could be made between the United States and other countries, had the United States not chosen to produce estimates of expenditures by level, specifically for international comparisons. The following comments pertain to the estimates of spending for specific levels that the United States has submitted to OECD.

Preprimary Education. The United States has had to rely on crude estimates of the kindergarten portion of total K-12 spending, and the U.S. data on preprimary education preceding kindergarten are seriously incomplete. As a result, the U.S. EAG2 figures on preprimary spending were understated by large percentages relative to those of countries that cover preprimary education comprehensively, such as France, and, at the same time, overstated relative to those of countries that then defined preprimary narrowly, such as Sweden. As explained earlier, the large differences in coverage invalidated comparisons of preprimary spending based on the EAG2 statistics. As a result of post-EAG2 improvements, many countries now cover spending for preprimary education more comprehensively than previously. The United States, therefore, is probably now among the countries with less thorough coverage of the preprimary sector.

Primary Education. The quality of the U.S. statistics on spending for primary education depends mainly on the adequacy of the method used by the U.S. authorities to attribute shares of aggregate K-12 expenditure to preprimary, primary, and secondary education. That method, described in Chapter 4, depends on assumptions of uncertain validity. For example, it may not have been correct to assume that expenses for resources other than teachers are divided between the elementary and secondary levels in the same proportion as teacher salaries, or that funds are divided between the preprimary and primary levels in proportion to enrollment. A more detailed inquiry would be needed to resolve doubts about the accuracy of the allocations.

Apart from the issue of allocation methods, the U.S. estimates of total primary spending reflect a stipulated duration of primary education of six years, which makes them noncomparable to figures for countries whose nationally defined durations are four or five years (e.g., Germany, Austria, France, and Spain). This is simply a manifestation of the general, still unresolved "ISCED problem." But durational differences notwithstanding, rough comparisons of expenditure per primary student can still be made between the United States and countries whose own statistics are not seriously problematic--recognizing, of course, that the U.S. estimation procedures may skew the results to an unknown degree.

Secondary Education. The same misgivings as stated above also apply to the U.S. estimates of the share of total K-12 expenditure attributable to all secondary education. (The U.S. has not produced separate estimates of spending for lower-secondary and upper-secondary education.) Even if the estimates were valid, differences in the nationally defined duration of secondary education would rule out comparisons between the U.S. and certain other countries of total secondary spending or secondary spending as a percentage of GDP. In addition, such country-specific factors as omission of apprenticeship costs (or, in the German case, inclusion of apprentices' compensation), exclusion of outlays for "nonregular" education (France), and ambiguous definitions of the secondary/tertiary boundary (United Kingdom and Australia) would have distorted comparisons with the United States even in the absence of durational problems. It is feasible to make rough comparisons of spending per secondary student between the United States and a subset of the other countries (not those that rely heavily on work-based education), but the U.S. estimation process itself may have biased the results to an unknown extent.

Tertiary Education. The U.S. statistics on expenditures for tertiary education services are among the more comprehensive submitted to OECD. They reflect all forms of public and private funding for nearly all types of tertiary institutions and include essentially all funds for research in institutions of higher education. The only significant omission appears to be that proprietary institutions (which account for about 6 percent of enrollment and a smaller percentage of spending) are excluded. Although outlays for ancillary services have not been

BEST COPY AVAILABLE

included, either gross or net spending for such services could be added, if desired. (Student loans and some scholarships also have not been reported, but this does not affect comparisons of spending for educational services.)

Total U.S. tertiary spending is substantially overstated relative to that of countries whose figures exclude substantial amounts of private funding or funding from noneducation agencies (most notably, the United Kingdom) or major portions of research funding (France, the United Kingdom, and the Netherlands). Apart from the problem of inconsistent coverage of expenditures, difficulties arise in comparing spending per FTE tertiary student between the United States (or the other English-speaking countries) and European countries that do not acknowledge the part-time status of many of their tertiary enrollees. The problem of inconsistent measurement of FTE tertiary enrollment is serious enough by itself to invalidate or degrade comparisons of expenditure per tertiary student between the United States and half the countries covered by this study.

Comparisons of the Composition of Spending

Comparisons between the United States and other countries of distributions of expenditures by level of education and source and use of funds all are of potential interest to policymakers, but the prospects for valid comparisons are not encouraging, for the reasons summarized below.

Expenditures by Level of Education. As explained earlier, inconsistent definitions of levels, together with other factors, generally have precluded international comparisons of the distribution of funds by level of education. The general difficulties are exacerbated in the case of the United States by the institutional integration of kindergarten and primary education; the lack of uniformly defined boundaries between primary and secondary, or between lower-secondary and upper-secondary, education; and, of course, the lack of disaggregated expenditure statistics, other than rough estimates, within the primary-secondary range. In addition, a well-known phenomenon not reflected in the education statistics is that much of the activity of U.S. non-university tertiary institutions (community colleges, proprietary institutions, etc.) corresponds to what would be classified as secondary rather than tertiary education in many other countries.

Sources of Education Funds. For EAG2, the United States classified final (after transfer) expenditures as public or private according to whether the final users of the funds in question were public or private institutions. This approach made the U.S. breakdown of sources of funds for tertiary education incompatible with those of countries (the majority) that had based their classifications on whether government agencies or private parties were the final purchasers of the services of educational institutions. Later, after OECD endorsed the latter approach, the United States modified its statistics to conform. The U.S. statistics on sources of funds for tertiary education remain somewhat misleading for a different reason, however--the failure to take certain forms of financial aid to students, including student loans and nonfederal scholarships, into account.

The U.S. statistics on sources of funds for primary-secondary education seem to be free of major problems. At the preprimary level, however, the omission of most private funds from the U.S. figures gives a false impression of the mix of public and private support.

Uses of Education Funds. International comparisons of uses of education funds tend to misrepresent the U.S. resource mix relative to the mixes of many other countries. One reason is that the local agencies responsible for preprimary through secondary education in the United States perform a number of ancillary and support functions (student transportation, meals, health and psychological services, etc.) that other countries carry out outside the education sector and often do not include in their education statistics. Another is that the

United States defines teaching personnel narrowly, limiting it mainly to classroom teachers, whereas other countries construe it to include school principals and other professional staff. The combined effect is to exaggerate the percentage of U.S. expenditures devoted to nonteaching personnel and to understate the percentage devoted to teaching staff, as compared with most other countries.

Summary

Comparisons of education expenditures between the United States and other countries generally are impaired more by the shortcomings of the other countries' statistics than by those of the U.S. figures. Although the U.S. statistics do deviate in a few significant respects from the recently formulated international standards, these deviations are large enough in only a small number of cases to preclude or severely distort inter-country comparisons. It follows that there are only a limited number of steps the United States could take by itself to make its own statistics substantially more comparable with those of other nations. The main such steps would be to fill the expenditure gaps mentioned at the beginning of this section and to refine the methods used to apportion K-12 outlays among the preprimary, primary, and secondary levels. Otherwise, the opportunities for remedial action rest mainly in the hands of the international agencies and the data providers of other countries.

The salient points concerning the legitimacy of the principal types of expenditure comparisons between the United States and the other OECD countries can be summarized briefly as follows:

- The EAG2 and post-EAG2 statistics on certain broad expenditure aggregates--namely, total and per-student spending for primary-secondary education and total spending for all levels of education combined--are suitable for rough comparisons (e.g., rankings) between the United States and most, but not all, of the other countries examined.

- Both the EAG2 and post-EAG2 statistics on total spending for specific levels of education--preprimary, primary, secondary, and tertiary--are too distorted by definitional differences and differences in statistical coverage to be used for even rough comparisons between the United States and other countries.

- The EAG2 statistics on spending per primary student and the later statistics on both spending per primary student and spending per secondary student appear to be suitable for comparisons between the United States and various subsets of the other countries; however, this has to be said tentatively because of the possibility that the procedures for allocating K-12 expenditures by level may have skewed the U.S. figures.

- Neither the EAG2 nor the post-EAG2 statistics support valid international comparisons of spending per tertiary student.

- Various statistical shortcomings prevent valid comparisons between the United States and other countries of such aspects of the composition of expenditures as the distribution of spending by level of education, the shares of funds from public and private sources, and the shares of funds expended for teaching and nonteaching personnel; however, the post-EAG2 figures allow qualified comparisons of the distribution of public funds by level of government.

General Conclusions and Implications for Users and Producers of International Expenditure Statistics

We begin these final remarks with a statement of global conclusions, summing up the more specific findings and conclusions set forth above. We then comment on the broad implications of the study's results, first for policymakers and other potential users of international comparisons of education finance and then for the producers of the international expenditure statistics.

General Conclusions

The international expenditure statistics collected and published by OECD and UNESCO in the past reflected multiple, serious, and widespread comparability problems, but the size and significance of the resulting deviations from comparability varied, depending on the expenditure categories, levels of education, and countries in question. Comparisons of spending for particular levels of education and comparisons of the composition of spending generally were more severely flawed than comparisons of broader expenditure aggregates, but even figures on total national spending for all primary-secondary education and all levels of education combined were severely noncomparable among some countries.

Focusing specifically on the second edition of *Education at a Glance*, we conclude that many of the comparative expenditure indicators presented there are too distorted by comparability problems to be taken at face value, to be portrayed to policymakers or the public as accurate reflections of reality, or, especially, to be used in research or policy studies. Departures from comparability rule out many potentially important and policy-relevant international comparisons entirely. For example, the EAG2 statistics do not yield valid or usable comparisons of total expenditures for preprimary education; expenditures per tertiary student; shares of GDP expended for primary, lower-secondary, upper-secondary, or all secondary education taken separately (as opposed to spending for primary-secondary education as a whole); the distribution of spending by level of education; the shares of education funds derived from public and private sources; or the shares of education funds expended for teaching and non-teaching personnel.

Since 1993, however, important progress has been made towards enhancing the international comparability of the education expenditure statistics. The decision of OECD's INES project to make international comparability a high-priority concern was crucial to bringing about these improvements, and the availability of information from this NCES-sponsored study was an important contributing factor. The gains have resulted from a combination of improved international data collection instruments, definitions, and instructions and intensified efforts by some countries, aided and encouraged by OECD, to provide more comprehensive and comparable statistics.

The present situation is that some comparability problems have been confronted and largely resolved; some have been dealt with in principle but not yet resolved in practice; and others remain to be addressed. But although some important problems persist and considerable further work is needed, the prospects have now brightened for upgrading not only the education expenditure statistics but also other major categories of international education statistics to the point that policymakers can depend on them. Increasingly, as the conceptual, definitional, and methodological issues have been settled, the critical factor becomes the willingness of individual countries to fill data gaps and to report expenditures according to standard international categories.

Implications for Policymakers and Other Potential Users

Statistics on education expenditures, like statistics on other matters of public concern, are collected not for the edification of the statisticians but in the hope that policymakers, researchers, and others will put them to socially productive uses. From that perspective, the main implication of the largely negative findings about past comparability laid out in this report is that the international expenditure statistics produced prior to 1994 are not adequate to answer many of the questions policymakers are likely to pose or to satisfy the needs of researchers, policy analysts, and other potential data users. On the other hand, the implications of the more positive findings concerning recent and prospective improvements are that comparability has already been significantly enhanced, and that the number and variety of feasible applications can be expected to increase further if the effort to upgrade the statistics is sustained. To bring out these implications more concretely, we consider the suitability of the past and prospective expenditure statistics for specific classes of policy-related applications, beginning with the least demanding and progressing to those that require more comparable and accurate data.

Ranking and Grouping Countries. Probably the least demanding use of international expenditure statistics is to rank countries, or to sort countries into groups (e.g., low, medium, high) on the basis of how much each country spends on education. Such rankings and groupings are favored mainly by journalists and polemicists (one encounters many "horse race" and "league table" metaphors) but also may play a limited role in conveying information to policy audiences. It appears that rankings according to certain highly aggregative expenditure indicators are not seriously impaired by the comparability problems documented in this report. For instance, the ranking of countries according to public-sector expenditure for all primary-secondary education as a percentage of GDP apparently is not much affected by deviations from comparability, although the ranking according to combined public and private spending for primary-secondary education is distorted fairly seriously (Sherman, 1996). It is possible--but this is not confirmed--that there might not be large errors in rankings or groupings according to EAG2 figures on public spending per student for the less problematic levels, such as primary education--at least if the countries with the more deviant statistics were excluded from the exercise. Subsequent improvements undoubtedly have enhanced the accuracy of rankings based on the EAG3 and subsequent statistics, but to an unknown degree. One can say, therefore, that the extant statistics partly satisfy one relatively low-level demand for comparative information: It is feasible to present roughly correct rankings or groupings of countries (at least most countries) according to selected expenditure variables.

Comparing Magnitudes of Spending. Potentially much more important than rankings for informing policymakers and conducting policy analyses are quantitative comparisons of expenditure magnitudes. Quantitative comparisons, as opposed to rank-orderings, focus on numerical measures of spending and, especially, on absolute or relative differences in spending among countries. For example, an ordinal comparison might tell us that the United States spends more per university student than, say, France; but a quantitative (cardinal) comparison would tell us whether it spends 10, 20, 50, or 100 percent more. In most policy contexts and virtually all research contexts, the information that one country spends 50 or 100 percent more than another for a supposedly equivalent type of education would have far different significance than the information that it spends 10 percent more. Quantitative comparisons, not mere rankings, are needed to distinguish between large and small, or between policy-relevant and inconsequential, differences.

In general, neither the expenditure statistics developed for EAG2 nor those compiled subsequently for EAG3 are sufficiently comparable across countries to support valid quantitative comparisons, in the sense defined above. The reason, very simply, is that the amounts by which individual-country expenditure figures deviate from comparability often are of the same order of magnitude as the true international variations in spending. For instance, it would be unwise to take apparent inter-country differences of 10 or 20 percent in aggregate education spending relative to GDP too seriously, given that the nationally reported values of aggregate spending can deviate from comparability by similar percentages. As to comparisons pertaining to individual levels of education, we have shown in this report that built-in definitional discrepancies can mask expenditure differentials as large as 30 to 50 percent, or can produce false indications of such differentials in cases where none exist.

Even the spending statistics and indicators less severely affected by comparability problems, such as those pertaining to aggregate spending for education as a whole, are more suitable for ranking and grouping countries than for quantifying expenditure differentials. One can say, at a minimum, that tables or displays purporting to compare expenditure levels or to represent expenditure differentials among countries should not be presented to policymakers, the media, or other consumers without strong warnings as to the nature and magnitudes of deviations from comparability. Even then, statistics for the countries that diverge most drastically from comparability should be labeled prominently, if not excluded from the presentations.

Both the number of expenditure statistics and the number of countries for which valid comparative statements can be made has undoubtedly increased as a result of the post-EAG2 improvements, but information on both the degree of improvement and where the improvements have occurred is lacking. This highlights a problem for policymakers and other potential users: Improvements notwithstanding, years may elapse before users will be able to trust international education statistics to the same degree as, for example, they trust the internationally compiled national economic accounts. In the interim, prospective users would benefit greatly from information on the scope and content of countries' education expenditure (and other education) statistics and the year-to-year changes therein. The current lack of any mechanism for producing such documentation (apart from special studies such as the one reported here) is an obstacle to using the improving expenditure data appropriately.

Relating Education Spending to Other Variables. Going beyond straightforward comparisons of spending among countries, international expenditure statistics are also wanted by researchers and policy analysts interested in analyzing relationships between education expenditures and other variables. Several types of relationships are potentially of interest. Education policymakers would like information about the connections between spending levels and real educational services or, better, educational outcomes; policymakers and scholars interested in productivity and economic growth would like to quantify the connections between investment in education and these economic variables; public finance analysts would want to link international differences in education spending to differences in such causal or explanatory factors as demographic makeup and per capita GDP. These analytical applications obviously would require higher levels of comparability and accuracy than the less demanding applications described above.

The implication of this study's findings for would-be analysts of relationships is unambiguous: Neither the EAG2 expenditure statistics nor the subsequent improved statistics are of adequate quality to be used in such studies. Even the less egregious national deviations from comparability sometimes are large relative to the inter-country variations one would want to analyze. Using statistics "as is" is not the only option, however. It might be feasible in connection with some types of analytical work to adjust the pertinent data for comparability problems by undertaking essentially the same kinds of country-specific inquiries as underlie this report. Admittedly, this is a far cry from using off-the-shelf statistics for analytical purposes; but realistically, it is all that can be done, given the current state of the art in comparing education expenditures.

Implications for the Producers of Expenditure Statistics

The central message of this report for the producers of international statistics on education expenditures is that although much has been done to develop the statistics during the last few years, further improvement efforts--and efforts of a somewhat different kind--are needed to satisfy the needs of policymakers and other users. "Producers" refers, in this context, to both the international agencies, especially OECD but also UNESCO and Eurostat, that collect and compile the international education expenditure statistics, and the data providers in the individual countries. The study's implications for both types of producers (and for the interaction between them) are set forth below.

OECD and the Other International Agencies. Because of recent progress, the main unfinished tasks facing the international agencies in connection with education finance statistics are considerably different now than they were three years ago. The 1993-1994 restructuring of the finance statistics, undertaken by OECD in consultation with both the other international agencies and the national data providers, has resolved or alleviated many of the conceptual, structural, and definitional difficulties that plagued earlier efforts to assemble such statistics. Consequently, although some important definitional questions still lack full or satisfactory answers, the time seems to have come for the agencies to shift their priorities more towards implementation at the national level.

Of the important definitional issues that still need to be addressed, most are generic issues concerning all education statistics, not issues peculiar to statistics on finance. The most critical generic issue at the moment is how the international classification of levels of education (ISCED) should be revised. A more rigorous taxonomy, featuring detailed, operational definitions of sectors and levels of education, is a prerequisite for valid disaggregated comparisons of education spending. Although comparability issues have been raised forcefully in the context of ISCED revision (which is now proceeding under UNESCO auspices), a satisfactory solution cannot be taken for granted. Ensuring that one emerges should be a high priority of the agencies interested in the comparability of future education statistics. Other relevant generic issues awaiting solutions from the international agencies concern the boundary between education and labor training; the definitions of adult, continuing, and other nonregular education; and the calculation of full-time equivalent enrollment, especially at the tertiary level.

The unresolved issues specific to education finance are mainly technical. They concern such things as how expenditures for employer-based education and employee pensions should be quantified, how the research component of spending for tertiary education might be measured, how estimates of spending should be prepared in cases where expenditure statistics have not been collected, and how expenditures should be allocated, where necessary, among levels and types of education. Cooperative efforts by the international agencies and the national data providers are likely to be needed, in most instances, to deal with these matters.

On the implementation front, the problem facing OECD and the other agencies is how to induce and assist the individual countries to apply the concepts, definitions, and measurement methods agreed upon internationally. The issue is relevant because experience has shown that one cannot count on implementation to occur quickly or automatically, at least not in all the countries. The task of promoting national implementation is partly technical and partly political. The technical portion may be addressable through either general or country-specific technical assistance. The political part entails persuading countries to produce and report statistics to international agencies according to the agreed-upon international categories and definitions, even where these do not match national specifications, and even where the countries might have to exert extra effort and incur additional costs to comply.

A problem in the latter regard is that the burdens of compliance are unavoidably very unequally distributed. Countries whose education structures and statistics happen to match the international categories can comply easily; those not in that situation face greater difficulty. What seems to be called for from OECD and the other agencies is a form of "technical diplomacy," combined, if possible, with tangible assistance to the more-burdened countries. Because greater comparability is beneficial to all the countries, not just to those that must make the larger adjustments, there is a good argument for some form of international sharing of the costs.

The National Data Providers. Whether the international expenditure statistics will improve to the point that they can be used for the more demanding applications described above depends ultimately on the ability and willingness of individual countries to do what is necessary to provide comparable data. As noted above, the degree of additional effort that would be required (apart from routine annual reporting) varies greatly among countries, both in kind and in quantity. In general, each country seeking to bring its statistics to a high level of international comparability would have to undertake some combination of the types of actions listed below.

First, countries with significant data gaps would have to act to fill them. Depending on the situation, these steps could include collection of new data (e.g., the creation of new surveys to capture private expenditures), integration of data from nontraditional sources (e.g., data produced by noneducation ministries or nongovernmental bodies), or development of estimates, in cases where data are too difficult or too costly to collect.

Second, some countries would have to revise their methods, or develop new methods, for measuring or estimating certain categories of education spending. The most important such cases concern expenditures for retirement programs, employer outlays for apprenticeship and other work-based training, and perhaps breakdowns of spending by resource category.

Third, some countries would have to modify either their definitions of the boundaries of education or their classifications of spending or both, sometimes departing from national categories in the interest of improved international comparisons. Many national statisticians surely would consider it unwise, however, to alter their definitions of levels or sectors in advance of ISCED revision--which is precisely why ISCED revision was identified above as one of the highest-priority contributions the international agencies could make to the cause of comparability.

Laying out the technical steps needed to move towards comparability is generally an easier task than identifying the factors that might induce national data providers to take them. In more than a few instances, the main impediment to progress is not that producing more comparable statistics would be technically difficult or unduly costly but rather that doing so would be uncomfortable doctrinally or politically. The multiyear OECD/INES process notwithstanding, some national data providers still do not fully accept certain principles vital for valid international comparisons--for instance, that international data categories need not correspond to those used domestically and that reliance on estimates and allocations is preferable to omitting significant portions of spending. The need to instill such principles, perhaps more than any need for detailed technical assistance, is what makes continued interaction between the national data providers and the international agencies essential. In the end, willingness to cooperate at the national level will determine whether, or to what extent, the potential benefits of internationally comparable statistics will be obtainable.

Notes

1. The standard referred to here consists of a set of specifications stipulating which educational activities and which cost elements shall or shall not be reflected in education expenditures for purposes of international comparison. For example, the standard applied in Sherman (1996) stipulates that expenditure statistics should embrace all center-based preprimary programs for children three and older, spending for administrative and support functions by both education and noneducation agencies, employers' expenses for training (but not compensating) apprentices, and all expenditures for research in institutions of higher education; but the statistics should exclude costs of university hospitals, subsidies for student living expenses, and institutional outlays for student housing, meals, and other such ancillary services.

2. The calculation is based on figures on adjusted public and private expenditures for primary education relative to GDP (both low and high estimates) for ten countries presented in Chapter IV of Sherman (1996).

3. The quantitative analysis of tertiary expenditures in Sherman (1996) deals only with the comparability of statistics on expenditures for tertiary institutions; it does not consider the problems created by either inconsistent coverage of financial aid to students or the inclusion of subsidies for living expenses in the statistics of some countries but not others. In cases where countries have understated their institutional expenditures but included student subsidies, the two effects on comparability would tend to offset each other, but in cases where countries have overstated institutional expenditures, the two effects would be mutually reinforcing.

4. All estimates of adjustments needed to attain comparability in Sherman (1996) are expressed, of necessity, in terms of ranges within which the adjustments are likely to fall. Sometimes the ranges are broad, and sometimes they are based on little more than educated guesses about the magnitudes of omitted expenditure items. For some of the six countries mentioned, the required adjustment could exceed the stated nine percent figure, but for others it could be smaller than nine percent. Obviously, it is not possible to determine deviations from comparability precisely. If one could do so, one would be able to eliminate comparability problems by using the precisely determined deviations to adjust the statistics reported to OECD.

REFERENCES

Barro, Stephen M., *International Comparisons of Education Spending: Some Conceptual and Methodological Issues* (paper prepared for the Office of Policy and Planning, U.S. Department of Education), SMB Economic Research, Inc., Washington, D.C., April 1990.

Barro, Stephen M., *Comparing Education Resources and Costs Across Countries: an Assessment of the Proposed OECD Indicators of Education Finance* (paper prepared for the U.S. National Center for Education Statistics), SMB Economic Research, Inc., Washington, D.C., October 1990

Barro, Stephen M., *Towards a New International Classification of Education*, SMB Economic Research, Inc., Washington, D.C., December 1995.

Commission of the European Communities (EURYDICE, the Education Information Network in the European Community, and CEDEFOP, European Center for the Development of Vocational Training), *Structures of the Education and Initial Training Systems in the Member States of the European Community*, Brussels, 1990.

Commission of the European Communities and Netherlands Organization for International Cooperation in Higher Education, *A Guide to Higher Education Systems and Qualifications in the European Community*, Brussels, 1991.

Department for Education (UK), *Education Statistics for the United Kingdom, 1993 Edition*, London, HMSO, 1994.

Irvine, John, Ben R. Martin, and Phoebe A. Isard, *Investing in the Future: An International Comparison of Government Funding of Academic and Related Research*, London, Edward Elgar Publishing, 1990.

Kaiser, Frans, Jos B. J. Koelman, Raymond J. G. Florax, and Frans A. van Vught, *Public Expenditure on Higher Education: A Comparative Study in the EC-member States, 1975-1988*, Center for Higher Education Policy Studies, University of Twente, Enschede, Netherlands, 1991.

Kaneko, Motohisa, *Changing Patterns of Finance in Higher Education, Country Study: Japan*, OECD, Paris, August 1988.

Ministère de l'Éducation Nationale (French Ministry of Education), Direction de L'Évaluation et de la Prospective, *Repères & Références Statistiques sur les Enseignements et la Formation*, Paris, 1993.

Ministry of Education, Science, and Culture [of Japan], *Statistical Abstract of Education, Science, and Culture*, 1993 edition, Tokyo, April 1993.

BEST COPY AVAILABLE

Nelson, Howard F., *International Comparison of Public Spending on Education*, American Federation of Teachers, Washington, D.C., February 1991.

OECD (Organization for Economic Cooperation and Development), *Handbook on International Education Indicators*, Paris, September 1991.

OECD, "OECD Definitions for Education Indicators" (working paper), Paris, December 1992.

OECD, *Education at a Glance: OECD Indicators* (EAG1), Paris, 1992.

OECD, *Education in OECD Countries: A Compendium of Statistical Information*, Paris, 1993.

OECD, *Education at a Glance: OECD Indicators* (EAG2), Paris, 1993.

OECD, "Presentation of the Data Collection Package--Definitions Set," Technical Group Meeting (working paper), Paris, December 1993.

OECD, "Education at a Glance 3: Data Collection--Definitions" (working paper), Paris, January 1994.

OECD, Directorate of Science, Technology, and Industry (DSTI), *Main Science and Technology Indicators 1993, No. 2*, Paris, 1994.

OECD, Directorate of Science, Technology, and Industry (DSTI), "HERD/HEMP: Sources and Methods [higher education R&D/higher education manpower], Paris, 1994.

OECD, *Education at a Glance: OECD Indicators* (EAG3), Paris, 1995.

OECD, *UOE Data Collection: Data Collection Instruments for the 1995 Data Collection on Education Statistics*, Paris, 1995.

Ram, Rati, *Public Educational Expenditures in Industrialized Countries; An Analytical Comparison*, Center for the Study of Educational Finance, Illinois State University, Normal, Illinois, March 1991.

Rasell, M. Edith, and Lawrence Mishel, "Shortchanging Education: How U.S. Spending on Grades K-12 Lags Behind Other Industrial Nations," Economic Policy Institute, Washington, D.C., January 17, 1990.

Sherman, Joel D., *Quantitative Analysis of Expenditure Comparability*, International Education Expenditure Comparability Study, Vol. 2, Pelavin Research Institute, Washington, D.C., 1996.

UNESCO, Division of Statistics on Education, *International Standard Classification of Education (ISCED)* [ISCED Manual], Paris, March 1976.

UNESCO (United Nations Educational, Scientific, and Cultural Organization), *Statistical Yearbook, 1993*, Paris, 1993.

UNESCO, *World Education Report 1993*, Paris, 1993 (also, *World Education Report 1991*).

U.S. National Center for Education Statistics (NCES), *The Condition of Education*, Washington, D.C., 1993 (also, same title for 1991 and 1992).

U.S. National Center for Education Statistics (NCES), *Education in States and Nations: Indicators Comparing U.S. States with the OECD Countries in 1988*, Washington, DD.C., October 1993.

U.S. National Center for Education Statistics (NCES), *Digest of Education Statistics 1995*, Washington, D.C., 1995 (also, same title for 1993).

ANNEXES

Annex A: UOC Questionnaire on Statistics of Educational Finance and Expenditure

Selected tables from the UOC finance questionnaire (for the financial year beginning in 1990) are presented in the following four pages.

Table 1 provides a breakdown of sources of funds for all levels of education combined. The UOC questionnaire does not disaggregate sources of funds by level.

Table 2 provides a summary of education expenditure by "purpose" (nature and resource category), again for all levels of education combined. Note that the columns reflect the four possible combinations of funds for public and private education and from public and private sources.

Table 3 provides a detailed breakdown by both "purpose" and level of education of public expenditure on public education. It is one of four identically formatted tables. The three others, not reproduced here, are:

- Table 4. Public expenditure on private education (subsidies),
- Table 5. Private expenditure on private education,
- Table 6. Private expenditure on public education.

Two small supplemental tables (not shown here) cover aid for education given to foreign countries and total public expenditure (for all purposes, not just education).
The sectoral classification consists of the following four-way breakdown: public expenditures for public education, public subsidies for private education, private expenditures for public education, and private expenditures for private education.

expenditure on education by source
table1

Please mark the appropiate box: actual expenditure ☐
budget allocation ☐

The expenditure shown should not include transfers received. These funds must be counted in the budget of the authority making the transfer, if not please specify it.

Source of funds for education	**Total expenditure**	of which: capital expenditure
A. Public sources		
1. Central or Federal Government		
a) Ministry(ies) of education		
b) Other ministries or departments		
2. State governments		
3. Provincial or regional authorities		
4. Municipal and other local authorities		
5. Other public sources		
TOTAL public sources		
of which for private education		
B. Private sources		
1. Enterprises		
of which for public education		
2. Associations and private administration		
of which for public education		
3. Households (after deduction of scholarships received)		
of which for public education		
TOTAL private sources		
of which for public education		
TOTAL A + B		
C. Foreign aid received for education		
1. As gifts		
2. As loans		
TOTAL foreign aid received		
TOTAL A + B + C		

expenditure on education by purpose
table 2

If it is not possible to establish a distinction between public subsidies for private education and expenditure on public education please insert the total expenditure in the first column. Foreign aid should not be included.

Purpose of expenditure	Public expenditure on education		Private expenditure on education	
	on public education	subsidies for private education	on private education	on public education
A. Current expenditure				
1. Administration (central and local) other than emoluments of personnel				
2. Emoluments of personnel				
administrative staff				
teaching staff				
other personnel				
3. School books and other teaching materials				
4. Scholarships				
5. Welfare services				
school meals and boarding				
other welfare services				
6. Other current expenditure (please specify)				
7. Subsidies not distributed				
TOTAL current expenditure (1)				
B. Capital expenditure				
TOTAL capital expenditure (1)				
C. Loan transactions				
TOTAL loan transactions				
of which: loans to students				
loans for school building				
TOTAL expenditure A + B + C				

---

1) The totals of Table 2 should correspond to those of Tables 3, 4, 5 and 6. In order to agree with the total A + B of Table 1 and to avoid double counting, scholarships from public or private sources must be excluded from the total of columns "Private expenditure on education".

BEST COPY AVAILABLE

public expenditure on public education
table 3

If it is not possible to establish a distinction between public expenditure on public education and public subsidies for private education (table 4), please insert the total expenditure in table 3, and specify it.

Level and type of education	Total current expenditure	Administration other than emoluments of personnel	Personnel emoluments			School books and other teaching materials
			Administrative staff	Teaching staff	Other personnel	
A. Preceding the first level						
B. First level						
C. Second level, 1st stage						
a) General						
b) Vocational/technical						
D. Second level, 2nd stage						
a) General						
b) Teacher training						
c) Vocational/technical						
i) Full-time						
ii) Part-time						
E. Third level						
a) Universities and equivalents						
b) Distance-learning institutions						
c) Non-university						
F. Special education						
G. Adult education (1)						
H. Other types of education (1)						
I. Expenditure not distributed by level (1)						
TOTAL						

(1) Specify the types of education taken into account.

table 3 (contd.)

Scholar-ships and boarding	Welfare services	Other current expenditure	Subsidies not distributed	Capital expenditure (2)	TOTAL expenditure	Enrolment in public education (3)	Level and type of education
							A. Preceding the first level
							B. First level
							C. Second level, 1st stage
							a) General
							b) Vocational/technical
							D. Second level, 2nd stage
							a) General
							b) Teacher training
							c) Vocational/technical
							i) Full-time
							ii) Part-time
							E. Third level
							a) Universities and equivalents
							b) Distance-learning institutions
							c) Non-university
							F. Special education
							G. Adult education (1)
							H. Other types of education (1)
							I. Expenditure not distributed by level (1)
							TOTAL

(2) It includes figures on loan transactions.

(3) Please convert part-time pupils/students into full-time equivalents or give estimates.

BEST COPY AVAILABLE

Annex B: INES Finance Data Collection Tables for EAG2

The finance data collection form used by OECD's INES project for EAG2 (data for financial year 1991, collected in 1993) consisted of two tables, EXP1 and EXP2, reproduced in the following two pages.

Table EXP1 provided for breakdowns of expenditures before and after transfers by source of funds and level of education.

Table EXP2 provided for breakdowns of final (after transfer) expenditures from combined public and private sources and from public sources only into current expenditure, capital expenditure, and debt service. Current expenditure was further decomposed into expenditure for compensation of staff (with a distinction between teaching and nonteaching staff), other current expenditure by institutions, and direct expenditure by households and others.

All expenditure items were to be disaggregated by level. The specified levels and combinations of levels were preprimary education (ISCED 0), primary education (ISCED 1), combined lower-secondary and upper-secondary education (ISCED 2 + ISCED 3), total preprimary through upper-secondary education (ISCED 0-3), all tertiary education (ISCED 5-7), and all levels of education combined (ISCED 0-3 + ISCED 5-7, labeled ISCT). In addition, the column labeled UND0123 is for ISCED 0-3 expenditure not further allocable by level, and the one labeled UNDT is for expenditure not definable by level at all.

BEST COPY AVAILABLE

Table EXP1: EDUCATIONAL EXPENDITURE BEFORE AND AFTER TRANSFER BY SOURCE AND ISCED LEVEL

Current and capital expenditures--local monetary units: in millions at current prices

BEFORE TRANSFERS	ISC0	ISC1	ISC23	UND0123	ISC0-3	ISC567	UNDT	ISCT
Public Sources								
Federal or central sources								
Provincial or regional sources								
Local or municipality sources								
International sources								
Total public sources								
Private sources								
Households								
Other private sources								
Total private sources								
Total public and private sources								
AFTER TRANSFERS	ISC0	ISC1	ISC23	UND0123	ISC0-3	ISC567	UNDT	ISCT
Public Sources								
Federal or central sources								
Provincial or regional sources								
Local or municipality sources								
International sources								
Total public sources								
Private sources								
Households								
Other private sources								
Total private sources								
Total public and private sources								

Table EXP2: EDUCATIONAL EXPENDITURE AFTER TRANSFERS BY RESOURCE CATEGORY AND ISCED LEVEL

Local monetary units: in millions at current prices

EXPENDITURES FROM PUBLIC AND PRIVATE SOURCES	ISC0	ISC1	ISC23	UND0123	ISC0-3	ISC567	UNDT	ISCT
Total current expenditure								
Compensation of all staff								
Compensation of teachers								
Compensation of staff other than teachers								
Other current expenditure by institutions								
Direct expenditure by households or others								
Capital expenditure								
Debt service								
Payment of loan principal								
Payment of loan interest								
Total expenditure								
EXPENDITURE FROM PUBLIC SOURCES	ISC0	ISC1	ISC23	UND0123	ISC0-3	ISC567	UNDT	ISCT
Total current expenditure								
Compensation of all staff								
Compensation of teachers								
Compensation of staff other than teachers								
Other current expenditure by institutions								
Direct expenditure by households or others								
Capital expenditure								
Debt service								
Payment of loan principal								
Payment of loan interest								
Total expenditure								

Annex C: The Restructured INES Finance Data Collection Tables for EAG3

The restructured finance data collection form used for the OECD INES project's data collection for EAG3 (data for financial year 1992, collected in 1994) consisted of two tables, designated FINANCE 1 and FINANCE 2. These tables are shown in the following 9 pages.

Table FINANCE 1 was used to report expenditures by source, type of transaction, and level of education. It distinguishes among five funding sources--central, regional, and local governments, households, and other private entities. The expenditures of each source are broken down into direct expenditures for educational institutions (with distinctions among public, government-dependent private, and independent institutions), intergovernmental transfers, and transfers to private entities.

Table FINANCE 2 was used to report expenditures by nature, resource category, and level of education. The portion of the table shown covers only the expenditures of public institutions. Identically formatted portions (not shown) covered the expenditures of government-dependent private and independent private institutions.

In addition, supplemental tables (not shown) were provided for reporting debt service expenditures, details of expenditures for research in tertiary institutions, and details concerning the nature of financial aid to students.

EDUCATION EXPENDITURES BY SOURCE, TYPE OF TRANSACTION, AND LEVEL OF EDUCATION

Code	Source of Funds and Type of Transaction	Level of Education									
		Preprimary (ISC 0) 1	Primary (ISC 1) 2	Lower Secondary (ISC 2) 3	Upper Secondary (ISC 3) 4	All Secondary (ISC 2,3) 5	Primary + Secondary (ISC 1,2,3) 6	Preprimary + Primary + Secondary (ISC 0,1,2,3) 7	Tertiary (ISC 5,6, 7) 8	Not Allocated by Level 9	Total, All Levels 10
	GOVERNMENT EXPENDITURES										
	CENTRAL GOVERNMENT EXPENDITURES										
	Direct expenditures for educational institutions										
C1	Direct expenditures for public institutions										
C2	Direct expenditures for government-dependent private institutions										
C3	Direct expenditures for independent private institutions										
C4	Subtotal: direct expenditures for private institutions (C2 + C3)										
C5	Total: direct expenditures for all types of institutions (C1 + C4)										
	Intergovernmental transfers for education (net)										
C7	Transfers to regional governments (net)										
C8	Transfers to local governments (net)										
C9	Total intergovernmental transfers (C7 + C8)										
	Transfers and payments for education to private entities										
C10	Scholarships and other grants to students/households										
C11	Student loans										
C12	Total financial aid to students (C10 + C11)										
C13	Transfers and payments to other private entities										
C14	Total transfers and payments to the private sector (C12 + C13)										
C15	Total education expenditures of central government (C5 + C9 + C14)										

BEST COPY AVAILABLE

EDUCATION EXPENDITURES BY SOURCE, TYPE OF TRANSACTION, AND LEVEL OF EDUCATION

Code	Source of Funds and Type of Transaction	Level of Education									
		Preprimary (ISC 0) 1	Primary (ISC 1) 2	Lower Secondary (ISC 2) 3	Upper Secondary (ISC 3) 4	All Secondary (ISC 2,3) 5	Primary + Secondary (ISC 1,2,3) 6	Preprimary + Primary + Secondary (ISC 0,1,2,3) 7	Tertiary (ISC 5,6, 7) 8	Not Allocated by Level 9	Total, All Levels 10
	REGIONAL GOVERNMENT EXPENDITURES										
	Direct expenditures for educational institutions										
R1	Direct expenditures for public institutions										
R2	Direct expenditures for government-dependent private institutions										
R3	Direct expenditures for independent private institutions										
R4	Subtotal: direct expenditures for private institutions (R2 + R3)										
R5	Total: direct expenditures for all types of institutions (R1 + R4)										
	Intergovernmental transfers for education (net)										
R8	Transfers to local governments (net)										
	Transfers and payments for education to private entities										
R10	Scholarships and other grants to students/households										
R11	Student loans										
R12	Total financial aid to students (R10 + R11)										
R13	Transfers and payments to other private entities										
R14	Total transfers and payments to the private sector (R12 + R13)										
R15	Total education expenditures of regional governments (R5 + R8 + R14)										

BEST COPY AVAILABLE

EDUCATION EXPENDITURES BY SOURCE, TYPE OF TRANSACTION, AND LEVEL OF EDUCATION

		Level of Education									
Code	Source of Funds and Type of Transaction	Preprimary (ISC 0) 1	Primary (ISC 1) 2	Lower Secondary (ISC 2) 3	Upper Secondary (ISC 3) 4	All Secondary (ISC 2,3) 5	Primary + Secondary (ISC 1,2,3) 6	Preprimary + Primary + Secondary (ISC 0,1,2,3) 7	Tertiary (ISC 5,6, 7) 8	Not Allocated by Level 9	Total, All Levels 10
	LOCAL GOVERNMENT EXPENDITURES										
	Direct expenditures for educational institutions										
L1	Direct expenditures for public institutions										
L2	Direct expenditures for government-dependent private institutions										
L3	Direct expenditures for independent private institutions										
L4	Subtotal direct expenditures for private institutions (L2 + L3)										
L5	Total direct expenditures for all types of institutions (L1 + L4)										
	Transfers and payments for education to private entities										
L10	Scholarships and other grants to students/households										
L11	Student loans										
L12	Total financial aid to students (L10 + L11)										
L13	Transfers and payments to other private entities										
L14	Total transfers and payments to the private sector (L12 + L13)										
L15	Total education expenditures of local governments (L5 + L14)										

	FUNDS FROM INTERNATIONAL AGENCIES AND OTHER FOREIGN SOURCES										
F	Transfers from foreign sources to central government										

BEST COPY AVAILABLE

EDUCATION EXPENDITURES BY SOURCE, TYPE OF TRANSACTION, AND LEVEL OF EDUCATION

Code	Source of Funds and Type of Transaction	Level of Education									
		Preprimary (ISC 0) 1	Primary (ISC 1) 2	Lower Secondary (ISC 2) 3	Upper Secondary (ISC 3) 4	All Secondary (ISC 2,3) 5	Primary + Secondary (ISC 1,2,3) 6	Preprimary + Primary + Secondary (ISC 0,1,2,3) 7	Tertiary (ISC 5,6,7) 8	Not Allocated by Level 9	Total, All Levels 10
	EXPENDITURES OF ALL LEVELS OF GOVERNMENT COMBINED	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
	Direct expenditures for educational institutions	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
G1	Direct expenditures for public institutions (C1 + R1 + L1)										
G2	Direct expenditures for government-dependent private institutions (C2 + R2 + L2)										
G3	Direct expenditures for independent private institutions (C3 + R3 + L3)										
G4	Subtotal: direct expenditures for private institutions (G2 + G3)										
G5	Total: direct expenditures for all types of institutions (G1 + G4)										
	Transfers and payments for education to private entities	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
G10	Scholarships and other grants to students/households (C10 + R10 + L10										
G11	Student loans (C11 + R11 + L11)										
G12	Total financial aid to students (G10 + G11)										
G13	Transfers and payments to other private entities (C13 + R13 + L13)										
G14	Total transfers and payments to the private sector (G12 + G13)										
G15	Total education expenditures of all levels of government combined (G5 + G14)										

EDUCATION EXPENDITURES BY SOURCE, TYPE OF TRANSACTION, AND LEVEL OF EDUCATION

Code	Source of Funds and Type of Transaction	Level of Education									
		Preprimary (ISC 0) 1	Primary (ISC 1) 2	Lower Secondary (ISC 2) 3	Upper Secondary (ISC 3) 4	All Secondary (ISC 2,3) 5	Primary + Secondary (ISC 1,2,3) 6	Preprimary + Primary + Secondary (ISC 0,1,2,3) 7	Tertiary (ISC 5,6, 7) 8	Not Allocated by Level 9	Total, All Levels 10
	PRIVATE EXPENDITURES	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
	EXPENDITURES OF HOUSEHOLDS	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
	Direct expenditures for educational services	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
H1	Payments to public institutions (net)										
H2	Payments to government-dependent private institutions (net)										
H3	Payments to independent private institutions (net)										
H4	Subtotal: payments to private institutions (net) (H2 + H3)										
H5	Total: payments to all types of institutions (net) (H1 + H4)										
H6	Direct purchases of educational goods and services (not from educational institutions)										
H15	Total direct expenditures for educational services (H5 + H6)										
	Repayments of student loans	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
H16a	Repayments of student loans from government										
H16b	Repayments of student loans from other private entities										

C-6

546

547

EDUCATION EXPENDITURES BY SOURCE, TYPE OF TRANSACTION, AND LEVEL OF EDUCATION

Code	Source of Funds and Type of Transaction	Level of Education									
		Preprimary (ISC 0) 1	Primary (ISC 1) 2	Lower Secondary (ISC 2) 3	Upper Secondary (ISC 3) 4	All Secondary (ISC 2,3) 5	Primary + Secondary (ISC 1,2,3) 6	Preprimary + Primary + Secondary (ISC 0,1,2,3) 7	Tertiary (ISC 5,6,7) 8	Not Allocated by Level 9	Total, All Levels 10
	EXPENDITURES OF OTHER PRIVATE ENTITIES (including firms and religious and other nonprofit organizations but not educational institutions)										
	Direct expenditures for educational services										
E1	Payments to public institutions										
E2	Payments to government-dependent private institutions										
E3	Payments to independent private institutions										
E4	Subtotal: payments to private institutions (E2 + E3)										
E5	Total: payments to all types of institutions (E1 + E4)										
	Financial aid to students										
E10	Scholarships and other grants to students/households										
E11	Student loans										
E12	Total financial aid to students (E10 + E11)										
E15	Total education expenditures of other private entities (E5 + E12)										

EDUCATION EXPENDITURES BY SOURCE, TYPE OF TRANSACTION, AND LEVEL OF EDUCATION

		Level of Education									
Code	Source of Funds and Type of Transaction	Preprimary (ISC 0) 1	Primary (ISC 1) 2	Lower Secondary (ISC 2) 3	Upper Secondary (ISC 3) 4	All Secondary (ISC 2,3) 5	Primary + Secondary (ISC 1,2,3) 6	Preprimary + Primary + Secondary (ISC 0,1,2,3) 7	Tertiary (ISC 5,6, 7) 8	Not Allocated by Level 9	Total, All Levels 10
	TOTAL PRIVATE EXPENDITURES FOR EDUCATIONAL SERVICES										
P1	Payments to public institutions (H1 + E1)										
P2	Payments to government-dependent private institutions (H2 + E2)										
P3	Payments to independent private institutions (H3 + E3)										
P4	Subtotal: payments to private institutions (P2 + P3)										
P5	Total: payments to all types of institutions (P1 + P4)										
P6	Direct household purchases of educational goods and services (H6)										
P15	Total private expenditures for educational services (P5 + P6)										

	COMBINED PUBLIC AND PRIVATE EXPENDITURES FOR EDUCATIONAL SERVICES										
N1	Expenditures for public institutions (G1 + P1)										
N2	Expenditures for government-dependent private institutions (G2 + P2)										
N3	Expenditures for independent private institutions (G3 + P3)										
N4	Subtotal: expenditures for private institutions (N2 + N3)										
N5	Total: expenditures for all types of institutions (N1 + N4)										
N6	Direct household purchases of educational goods and services (P6)										
N15	Total expenditures for educational services (N5 + N6)										

EDUCATION EXPENDITURES BY NATURE, RESOURCE CATEGORY, AND LEVEL OF EDUCATION

Code	Service Provider and Expenditure Category	Level of Education									
		Preprimary (ISC 0) 1	Primary (ISC 1) 2	Lower Secondary (ISC 2) 3	Upper Secondary (ISC 3) 4	All Secondary (ISC 2,3) 5	Primary + Secondary (ISC 1,2,3) 6	Preprimary + Primary + Secondary (ISC 0 to 3) 7	Tertiary (ISC 5,6,7) 8	Not Allocated by Level 9	Total, All Levels 10
	PART X. EXPENDITURES OF OR FOR PUBLIC INSTITUTIONS										
	CURRENT EXPENDITURES										
	Current expenditures for basic educational services										
	Expenditures for compensation of personnel										
X1	Teachers										
X2	Other pedagogical, administrative, and professional personnel										
X3	Support personnel (clerical, maintenance, etc.)										
X4	Subtotal: teachers + other pedagogical, administrative, and professional personnel **(see instructions)** (X1 + X2)										
X5	Subtotal: Other pedagogical, administrative, and professional personnel + support personnel **(see instructions)** (X2 + X3)										
X6	Total personnel compensation (X1 + X2 + X3)										
	Expenditures for resources other than personnel										
X7	Purchased services										
X8	Other resources (supplies, materials, fuel, etc.)										
X9	Total expenditures for resources other than personnel (X7 + X8)										
X10	Total current expenditures for basic educational services (X6 + X9)										
	Current expenditures for ancillary services										
X11	Student welfare services (housing, meals, transportation, etc.)										
X12	Other ancillary services										
X13	Total current expenditures for ancillary services (X11 + X12)										
X14	Income received for ancillary services										
X15	Net current expenditures for ancillary services (X13 - X14, but no less than zero)										

EDUCATION EXPENDITURES BY NATURE, RESOURCE CATEGORY, AND LEVEL OF EDUCATION

Code	Service Provider and Expenditure Category	Level of Education									
		Preprimary (ISC 0) 1	Primary (ISC 1) 2	Lower Secondary (ISC 2) 3	Upper Secondary (ISC 3) 4	All Secondary (ISC 2,3) 5	Primary + Secondary (ISC 1,2,3) 6	Preprimary + Primary + Secondary (ISC 0 to 3) 7	Tertiary (ISC 5,6,7) 8	Not Allocated by Level 9	Total, All Levels 10
	PART X. EXPENDITURES OF OR FOR PUBLIC INSTITUTIONS (continued)										
X16	Net subsidy from institutions to students (see instructions)										
X17	Total current expenditures including gross expenditures for ancillary services (X10 + X13 + X16)										
X18	Total current expenditures including only net expenditures for ancillary services (X10 + X15 + X16)										
	CAPITAL EXPENDITURES										
X19	Total capital expenditures										
	CURRENT PLUS CAPITAL EXPENDITURES										
X20	Total current plus capital expenditures (including gross expenditures for ancillary services) (X17 + X19)										
X21	Total current plus capital expenditures (including only net expenditures for ancillary services) (X18 + X19)										
	EXPENDITURES FOR DEBT SERVICE										
X22	Interest payments										
X23	Repayment of principal										
X24	Total expenditures for debt service (X22 + X23)										

BEST COPY AVAILABLE

Listing of NCES Working Papers to Date

Please contact Ruth R. Harris at (202) 219-1831
if you are interested in any of the following papers

Number	Title	Contact
94-01 (July)	Schools and Staffing Survey (SASS) Papers Presented at Meetings of the American Statistical Association	Dan Kasprzyk
94-02 (July)	Generalized Variance Estimate for Schools and Staffing Survey (SASS)	Dan Kasprzyk
94-03 (July)	1991 Schools and Staffing Survey (SASS) Reinterview Response Variance Report	Dan Kasprzyk
94-04 (July)	The Accuracy of Teachers' Self-reports on their Postsecondary Education: Teacher Transcript Study, Schools and Staffing Survey	Dan Kasprzyk
94-05 (July)	Cost-of-Education Differentials Across the States	William Fowler
94-06 (July)	Six Papers on Teachers from the 1990-91 Schools and Staffing Survey and Other Related Surveys	Dan Kasprzyk
94-07 (Nov.)	Data Comparability and Public Policy: New Interest in Public Library Data Papers Presented at Meetings of the American Statistical Association	Carrol Kindel
95-01 (Jan.)	Schools and Staffing Survey: 1994 Papers Presented at the 1994 Meeting of the American Statistical Association	Dan Kasprzyk
95-02 (Jan.)	QED Estimates of the 1990-91 Schools and Staffing Survey: Deriving and Comparing QED School Estimates with CCD Estimates	Dan Kasprzyk
95-03 (Jan.)	Schools and Staffing Survey: 1990-91 SASS Cross-Questionnaire Analysis	Dan Kasprzyk
95-04 (Jan.)	National Education Longitudinal Study of 1988: Second Follow-up Questionnaire Content Areas and Research Issues	Jeffrey Owings
95-05 (Jan.)	National Education Longitudinal Study of 1988: Conducting Trend Analyses of NLS-72, HS&B, and NELS:88 Seniors	Jeffrey Owings

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
95-06 (Jan.)	National Education Longitudinal Study of 1988: Conducting Cross-Cohort Comparisons Using HS&B, NAEP, and NELS:88 Academic Transcript Data	Jeffrey Owings
95-07 (Jan.)	National Education Longitudinal Study of 1988: Conducting Trend Analyses HS&B and NELS:88 Sophomore Cohort Dropouts	Jeffrey Owings
95-08 (Feb.)	CCD Adjustment to the 1990-91 SASS: A Comparison of Estimates	Dan Kasprzyk
95-09 (Feb.)	The Results of the 1993 Teacher List Validation Study (TLVS)	Dan Kasprzyk
95-10 (Feb.)	The Results of the 1991-92 Teacher Follow-up Survey (TFS) Reinterview and Extensive Reconciliation	Dan Kasprzyk
95-11 (Mar.)	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
95-12 (Mar.)	Rural Education Data User's Guide	Samuel Peng
95-13 (Mar.)	Assessing Students with Disabilities and Limited English Proficiency	James Houser
95-14 (Mar.)	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
95-15 (Apr.)	Classroom Instructional Processes: A Review of Existing Measurement Approaches and Their Applicability for the Teacher Follow-up Survey	Sharon Bobbitt
95-16 (Apr.)	Intersurvey Consistency in NCES Private School Surveys	Steven Kaufman
95-17 (May)	Estimates of Expenditures for Private K-12 Schools	Stephen Broughman
95-18 (Nov.)	An Agenda for Research on Teachers and Schools: Revisiting NCES' Schools and Staffing Survey	Dan Kasprzyk
96-01 (Jan.)	Methodological Issues in the Study of Teachers' Careers: Critical Features of a Truly Longitudinal Study	Dan Kasprzyk

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-02 (Feb.)	Schools and Staffing Survey (SASS): 1995 Selected papers presented at the 1995 Meeting of the American Statistical Association	Dan Kasprzyk
96-03 (Feb.)	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
96-04 (Feb.)	Census Mapping Project/School District Data Book	Tai Phan
96-05 (Feb.)	Cognitive Research on the Teacher Listing Form for the Schools and Staffing Survey	Dan Kasprzyk
96-06 (Mar.)	The Schools and Staffing Survey (SASS) for 1998-99: Design Recommendations to Inform Broad Education Policy	Dan Kasprzyk
96-07 (Mar.)	Should SASS Measure Instructional Processes and Teacher Effectiveness?	Dan Kasprzyk
96-08 (Apr.)	How Accurate are Teacher Judgments of Students' Academic Performance?	Jerry West
96-09 (Apr.)	Making Data Relevant for Policy Discussions: Redesigning the School Administrator Questionnaire for the 1998-99 SASS	Dan Kasprzyk
96-10 (Apr.)	1998-99 Schools and Staffing Survey: Issues Related to Survey Depth	Dan Kasprzyk
96-11 (June)	Towards an Organizational Database on America's Schools: A Proposal for the Future of SASS, with comments on School Reform, Governance, and Finance	Dan Kasprzyk
96-12 (June)	Predictors of Retention, Transfer, and Attrition of Special and General Education Teachers: Data from the 1989 Teacher Followup Survey	Dan Kasprzyk
96-13 (June)	Estimation of Response Bias in the NHES:95 Adult Education Survey	Steven Kaufman
96-14 (June)	The 1995 National Household Education Survey: Reinterview Results for the Adult Education Component	Steven Kaufman

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-15 (June)	Nested Structures: District-Level Data in the Schools and Staffing Survey	Dan Kasprzyk
96-16 (June)	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman
96-17 (July)	National Postsecondary Student Aid Study: 1996 Field Test Methodology Report	Andrew G. Malizio
96-18 (Aug.)	Assessment of Social Competence, Adaptive Behaviors, and Approaches to Learning with Young Children	Jerry West
96-19 (Oct.)	Assessment and Analysis of School-Level Expenditures	William Fowler
96-20 (Oct.)	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96-21 (Oct.)	1993 National Household Education Survey (NHES:93) Questionnaires: Screener, School Readiness, and School Safety and Discipline	Kathryn Chandler
96-22 (Oct.)	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
96-23 (Oct.)	Linking Student Data to SASS: Why, When, How	Dan Kasprzyk
96-24 (Oct.)	National Assessments of Teacher Quality	Dan Kasprzyk
96-25 (Oct.)	Measures of Inservice Professional Development: Suggested Items for the 1998-1999 Schools and Staffing Survey	Dan Kasprzyk
96-26 (Nov.)	Improving the Coverage of Private Elementary-Secondary Schools	Steven Kaufman
96-27 (Nov.)	Intersurvey Consistency in NCES Private School Surveys for 1993-94	Steven Kaufman

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-28 (Nov.)	Student Learning, Teaching Quality, and Professional Development: Theoretical Linkages, Current Measurement, and Recommendations for Future Data Collection	Mary Rollefson
96-29 (Nov.)	Undercoverage Bias in Estimates of Characteristics of Adults and 0- to 2-Year-Olds in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
96-30 (Dec.)	Comparison of Estimates from the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-01 (Feb.)	Selected Papers on Education Surveys: Papers Presented at the 1996 Meeting of the American Statistical Association	Dan Kasprzyk
97-02 (Feb.)	Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-03 (Feb.)	1991 and 1995 National Household Education Survey Questionnaires: NHES:91 Screener, NHES:91 Adult Education, NHES:95 Basic Screener, and NHES:95 Adult Education	Kathryn Chandler
97-04 (Feb.)	Design, Data Collection, Monitoring, Interview Administration Time, and Data Editing in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-05 (Feb.)	Unit and Item Response, Weighting, and Imputation Procedures in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-06 (Feb.)	Unit and Item Response, Weighting, and Imputation Procedures in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-07 (Mar.)	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97-08 (Mar.)	Design, Data Collection, Interview Timing, and Data Editing in the 1995 National Household Education Survey	Kathryn Chandler

BEST COPY AVAILABLE

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
97-09 (Apr.)	Status of Data on Crime and Violence in Schools: Final Report	Lee Hoffman
97-10 (Apr.)	Report of Cognitive Research on the Public and Private School Teacher Questionnaires for the Schools and Staffing Survey 1993-94 School Year	Dan Kasprzyk
97-11 (Apr.)	International Comparisons of Inservice Professional Development	Dan Kasprzyk
97-12 (Apr.)	Measuring School Reform: Recommendations for Future SASS Data Collection	Mary Rollefson
97-13 (Apr.)	Improving Data Quality in NCES: Database-to-Report Process	Susan Ahmed
97-14 (Apr.)	Optimal Choice of Periodicities for the Schools and Staffing Survey: Modeling and Analysis	Steven Kaufman
97-15 (May)	Customer Service Survey: Common Core of Data Coordinators	Lee Hoffman
97-16 (May)	International Education Expenditure Comparability Study: Final Report, Volume I	Shelley Burns

DEPARTMENT OF EDUCATION
UNITED STATES OF AMERICA

BEST COPY AVAILABLE